Water Replenishment District
of Southern California

REGIONAL GROUNDWATER MONITORING REPORT
WATER YEAR 2006-2007

Central and West Coast Basins
Los Angeles County, California

March 2008

WRD

REGIONAL GROUNDWATER MONITORING REPORT
CENTRAL AND WEST COAST BASINS
LOS ANGELES COUNTY, CALIFORNIA
WATER YEAR 2006-2007

Water Replenishment District of
Southern California
4040 Paramount Boulevard
Lakewood, California 90712

(562) 921-5521

Robb Whitaker	**General Manager**
Robert Siemak	**Chief of Engineering and Planning**
Ted Johnson	**Chief Hydrogeologist**

Prepared by:

Tony Kirk	**Hydrogeologist**
Jason Weeks	**Senior Engineer**
Mat Kelliher	**Hydrogeologist**
Benny Chong	**Associate Hydrogeologist**
Nancy Matsumoto	**Senior Hydrogeologist**
Hélène Mendoza	**Technical Specialist**
Daethina Garcia	**Hydrogeology Intern**

MARCH 2008

Executive Summary

"To provide, protect and preserve high quality groundwater through innovative, cost-effective and environmentally sensitive basin management practices for the benefit of residents and businesses of the Central and West Coast Basins."

WRD Mission Statement

In 1959, the Water Replenishment District of Southern California (WRD) was formed by the electorate and the State of California to protect and preserve the quantity and quality of the groundwater supplies in the Central and West Coast groundwater basins (CWCB) in southern Los Angeles County. Today, these basins supply 40 percent of the water used by 4 million people in the region. This constitutes WRD's service area-covering 43 cities in a 420-square mile area.

WRD is responsible for managing and safeguarding these basins. Its focus is on maximizing the groundwater basins' capacity, preserving them for future use, and ensuring high water quality. To that end, WRD provides this Regional Groundwater Monitoring Report for Water Year 2006-2007 which ran from October 1, 2006 through September 30, 2007.

WRD's staff of highly skilled hydrogeologists, engineers, planners, and Geographic Information System (GIS) specialists engage year-round in extensive collection, analysis, and reporting of critical groundwater data. They work continually to sample, track, model, forecast, and plan for replenishment and water quality activities to ensure proper groundwater management.

These efforts result in the annual publication of the District's two main reports: the Engineering Survey and Report, issued since 1960, and this Regional Groundwater Monitoring Report, issued since 1995. The Regional Groundwater Monitoring Report presents the latest information on groundwater replenishment activities, groundwater production, groundwater levels, and an extensive section on groundwater quality.

Groundwater Production

This year's groundwater production increased by 3.4 % from the previous year, from 227,744 acre-feet (AF) to 235,770 AF. This level of groundwater production was less than the previous 5-year average of 239,557 AF.

Groundwater Replenishment

Water conservation at the Montebello Forebay Spreading Grounds totaled 96,749 AF including 11,495 AF of local water, 40,214 AF of imported water, and 45,039 AF of recycled water. At the seawater barriers, 25,071 AF of water were injected including 12,159 AF of imported water and 12,912 AF of recycled water.

Artificial replenishment activities combined with natural replenishment and controlled pumping have ensured a sustainable, reliable supply of groundwater in the CWCB. Artificial replenishment water sources used by WRD include imported water from the Metropolitan Water District, recycled water from the County Sanitation Districts of Los Angeles County,

and recycled water with advanced treatment from the West Basin Municipal Water District, the City of Los Angeles, and WRD's Leo J. Vander Lans water treatment facility.

Groundwater Levels

Groundwater levels decreased over most of the Central Basin during the past Water Year due primarily to low rainfall and limited availability of imported water. Water levels in the West Coast Basin remained relatively stable with small localized decreases. Groundwater in storage decreased over 59,000 AF basinwide.

Groundwater Quality

WRD has taken a proactive approach to protecting the basins in the face of challenging water quality and basin management issues. Establishment of the Regional Groundwater Monitoring Program, with the construction of a network of over 40 nested monitoring wells and collection of nearly 500 groundwater samples for over 100 different water quality constituents results annually in over 20,000 data points to track water quality trends and conditions.

In general, groundwater in the main producing aquifers of the basins is of good quality and is suitable for use now and in the future. Localized areas of marginal to poor water quality exist, primarily on the basin margins and in the shallower and deeper aquifers impacted by seawater intrusion.

Volatile organic compounds (VOCs), primarily perchloroethylene (PCE) and trichloroethylene (TCE), are present in the Central Basin and have impacted many production wells. However, in most cases the VOCs are at low concentrations and are below enforceable regulatory levels. Those few wells with higher concentrations above regulatory levels require treatment prior to use as drinking water. WRD has determined that special focus constituents including arsenic, chromium, total organic carbon, apparent color, and fuel oxygenates although sometimes detected do not pose a substantive threat to the basins at this time.

Challenges Ahead

WRD remains committed to its statutory charge to manage the public resource of the basins' storage capacity for the common good. To that end, WRD has in place innovative projects and programs and will continue to implement new water quality initiatives to ensure a continued reliable source of high-quality groundwater, reduce the reliance on costly imported water, and optimize the region's water resources for WRD's groundwater users.

Further information may be obtained at the WRD web site at http://www.wrd.org, or by calling WRD at 562-921-5521. WRD welcomes any comments or suggestions to this Regional Groundwater Monitoring Report.

TABLE OF CONTENTS

Section 1
Introduction

Section 2
Groundwater Replenishment

Section 3
Groundwater Production and Water Levels

Section 4
Groundwater Quality

Section 5
Summary of Findings

Section 6
Future Activities

Section 7
References

List of Tables

List of Figures

List of Figures (Cont'd)

SECTION 1
INTRODUCTION

The Water Replenishment District of Southern California (WRD or the District) manages groundwater replenishment and water quality activities for the Central and West Coast Basins (CWCB) in southern Los Angeles County (**Figure 1.1**). Our mission is to protect and preserve high-quality groundwater in the basins through innovative, cost-effective, and environmentally sensitive management practices for the benefit of residents and businesses of the CWCB.

As part of accomplishing this mission, WRD maintains a thorough and current understanding of groundwater conditions in the CWCB and strives to predict and prepare for future conditions. This is achieved through groundwater monitoring, modeling, and planning, which provide the necessary information to determine the "health" of the basins. This information in turn provides WRD, the pumpers in the District, other interested stakeholders, and the public with the knowledge necessary for responsible water resources planning and management.

1.1 BACKGROUND OF THE REGIONAL GROUNDWATER MONITORING PROGRAM

Since its formation in 1959, WRD has been actively involved in groundwater replenishment, water quality monitoring, contamination prevention, data management, and data publication. Historical over pumping of the CWCB caused overdraft, seawater intrusion and other groundwater management problems related to supply and quality. Adjudication of the basins in the early 1960s set a limit on allowable production in order to control the over pumping. Concurrent with adjudication, WRD was formed to address issues of groundwater recharge and groundwater quality. The Regional Groundwater Monitoring Program is an important District program which tracks water levels and water quality in the CWCB to ensure the usability of this groundwater reservoir.

Prior to 1995, WRD relied heavily upon groundwater monitoring data collected,

interpreted, and presented by other entities such as the Los Angeles County Department of Public Works (LACDPW), the California Department of Water Resources (DWR), and the private sector for understanding current basin conditions. However, these data were collected primarily from production wells, which are typically screened across multiple aquifers to maximize water inflow. This result is a mixing of the waters from the different aquifers connected by a single well casing, causing an averaging of water levels and water quality.

In order to obtain more accurate data for specific aquifers from which to infer localized water level and water quality conditions, depth-specific (nested) monitoring wells that tap discrete aquifer zones are necessary. **Figure 1.2** illustrates the capabilities of nested monitoring wells to assess individual aquifers compared to typical production wells. Data are generally provided for a Water Year (WY), which occurs from October 1 to the following September 30. During WY 1994-1995, WRD and the United States Geological Survey (USGS) began a cooperative study to improve the understanding of the geohydrology and geochemistry of the CWCB. The study was documented in USGS Water Resources Investigations Report 03-4065, *Geohydrology, Geochemistry and Ground-Water Simulation-Optimization of the Central and West Coast Basins, Los Angeles County, California* (Reichard et al. 2003). This study was the nucleus of the Regional Groundwater Monitoring Program. In addition to compiling existing available data, this study recognized that the sampling of production wells did not adequately characterize the layered multiple aquifer systems of the CWCB. The study focused on new data collection through drilling and construction of nested groundwater monitoring wells and conducting depth-specific water quality sampling. **Figure 1.3** shows the locations of wells in the resultant WRD nested monitoring well network. A listing and construction details for the WRD wells are presented in **Table 1.1.** WRD and the USGS are currently expanding the nested monitoring well network. Four 4 new wells were installed in 2006-2007 (**Figure 1.3**), and 4 additional wells will be installed in 2007-2008 to fill data gap areas and address significant groundwater management issues.

An *Annual Report on the Results of Water Quality Monitoring* (*Annual Report*) was

published by WRD from Water Years 1972-1973 through 1994-1995, and was based on a basinwide monitoring program outlined in the *Report on Program of Water Quality Monitoring* (Bookman-Edmonston Engineering, Inc., January 1973). The latter report recommended a substantial expansion of the then-existing program, particularly the development of a detailed and intensive program of monitoring the quality of groundwater in the Montebello Forebay. The Regional Groundwater Monitoring Program was designed to serve as an expanded, more representative basinwide monitoring program for the CWCB. This Regional Groundwater Monitoring Report is published in lieu of the previous *Annual Reports*.

1.2 CONCEPTUAL HYDROGEOLOGIC MODEL

As described above, the Regional Groundwater Monitoring Program changes the focus of groundwater monitoring efforts in the CWCB from production zones with averaged groundwater level and groundwater quality information, to a layered multiple aquifer system with individual zones of groundwater quality and groundwater levels. WRD views each aquifer as a significant component of the groundwater system and recognizes the importance of the interrelationships between water-bearing zones. The most accepted hydrogeologic description of the basin and the names of water-bearing aquifers were provided in California Department of Water Resources, *Bulletin No. 104: Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A – Ground Water Geology* (DWR, 1961). WRD generally follows the naming conventions of this report (Bulletin 104), redefining certain aspects when new data become available.

The locations of idealized geologic cross-sections AA' and BB' through the CWCB are shown on **Figure 1.3**. Cross-sections AA' and BB' are presented on **Figures 1.4** and **1.5**, respectively. These cross-sections are derived from cross-sections presented in Bulletin 104 as well as recent data from the Regional Groundwater Monitoring Program, and illustrate a simplified aquifer system in the CWCB. The main potable production aquifers are shown, including the deeper Lynwood, Silverado, and Sunnyside aquifers of the lower Pleistocene San Pedro Formation. Other main shallower aquifers, which

locally produce potable water, include the Gage and Gardena aquifers of the upper Pleistocene Lakewood Formation. Also shown on the geologic sections are the aquitards separating aquifers. Throughout this report the aquifers shown on the geologic sections are referred to as discrete groundwater zones. Many references are made to the Silverado aquifer which is typically the main producing aquifer in the CWCB. Substantial production can come from the Lynwood and Sunnyside aquifers as well.

1.3 GIS DEVELOPMENT AND IMPLEMENTATION

WRD uses a sophisticated Geographic Information System (GIS) as a tool for CWCB groundwater management. Much of the GIS was compiled during the WRD/USGS cooperative study. The GIS links spatially-related information (e.g., well locations, geologic features, cultural features, contaminated sites) to data on well production, water quality, water levels, and replenishment amounts. WRD uses the industry standard ArcGIS® software for data analysis and preparation of spatially-related information (maps and graphics tied to data). WRD utilizes Global Positioning System (GPS) technology to survey the locations of basinwide production wells, nested monitoring wells and other geographic features for use in the GIS database.

WRD is constantly updating the GIS with new data and newly-acquired archives of data acquired by staff or provided by pumpers and other agencies. The GIS is a primary tool for WRD and other water-related agencies to more accurately track current and past use of groundwater, track groundwater quality, and project future water demands, thus allowing improved management of the basins.

1.4 SCOPE OF REPORT

This report updates information on groundwater conditions in the CWCB for WY 2006-2007, and discusses the status of the Regional Groundwater Monitoring Program. Section 1 provides an overview of WRD and its Regional Groundwater Monitoring Program. Section 2 discusses the types, quantities, and quality of different source waters used by WRD for replenishment at the Montebello Forebay Spreading Grounds and the seawater barriers. Section 3 summarizes groundwater production in the

CWCB, and evaluates water level, storage change, and groundwater elevation data for WY 2006-2007. Section 4 presents water quality data for the WRD nested monitoring wells and basinwide production wells. Section 5 summarizes the findings of this report. Section 6 describes future regional groundwater monitoring activities. Section 7 lists the references used in this report. Figures and tables are presented at the end of the report. Copies of this report can be obtained from the WRD web site at www.wrd.org.

SECTION 2
GROUNDWATER REPLENISHMENT

Natural groundwater replenishment occurs through the deep infiltration of precipitation and applied surface waters (such as irrigation) into the aquifers, the conservation of stormwater in the spreading grounds, and groundwater underflow from adjacent basins. However, there is insufficient natural replenishment to sustain the allowed groundwater pumping that takes place in the CWCB. Therefore, WRD provides for artificial groundwater replenishment through the purchase of imported and recycled waters to make up the difference between groundwater pumping and natural replenishment. Artificial replenishment occurs at the Rio Hondo and San Gabriel River Spreading Grounds, at the Alamitos Gap, Dominguez Gap, and West Coast Basin seawater barrier project, and through the District's In-Lieu Program. This section describes the sources, quantities, and quality of water used for artificial replenishment in the CWCB during WY 2006-2007.

2.1 SOURCES OF REPLENISHMENT WATER

Replenishment water comes from imported, recycled, and local sources. These types are described below:

- Imported water: This source comes from the Colorado River and/or the State Water Project via pipelines and aqueducts. WRD purchases this water from member agencies to the Metropolitan Water District of Southern California (MWD) both for surface recharge at the Montebello Forebay Spreading Grounds and for injection at the seawater barriers. For the spreading grounds, the water is replenished from the sources without further treatment, as the source quality is high and the water is treated naturally as it percolates through the vadose zone soils (unsaturated zone). For the seawater barrier wells, the water is treated to meet all drinking water standards before injection, since it will not be percolating through vadose zone soils. Spreading water is available seasonally at a discounted rate from MWD if they have excess reserves, whereas a premium price is paid for the potable, non-interruptible

injection water at the barriers to maintain deliveries throughout the year and during droughts.

- Recycled water: This source's relatively low unit cost and good quality coupled with its year-round availability make it highly desirable as a replenishment source. However, its use is limited by regulatory agencies, including the California Department of Public Health (CDPH) and the Los Angeles Regional Water Quality Control Board (LARWQCB). Tertiary-treated recycled water is used for replenishment at the spreading grounds. Tertiary-treated recycled water followed by advanced treatment using microfiltration, reverse osmosis, and sometimes ultra-violet light is used for injection at the West Coast, Alamitos Gap, and Dominguez Gap Barriers.
- Make-Up Water: "Make-Up Water" is occasionally delivered to the Montebello Forebay Spreading Grounds from the Main San Gabriel Basin. This water, termed the "Lower Area Annual Entitlement", was established in accordance with the judgment in Case No. 722647 of Los Angeles County, City of Long Beach, et al vs. San Gabriel Valley Water Co., et al (Long Beach Judgment). During WY 2006-2007, Make-Up Water was not delivered to the Lower Area.
- Local water: Local water consists of channel flow from local sources (e.g., stormflow, rising water, incidental surface flows) conserved in the Montebello Forebay Spreading Grounds by the LACDPW. Precipitation falling on the basin floor and water applied to the ground (such as irrigation water) are also considered to be local water as they also percolate into the subsurface and contribute to recharge.
- Subsurface water: Groundwater flows into and out of the CWCB from adjacent groundwater basins (Santa Monica, Hollywood, Main San Gabriel, Orange County) and the Pacific Ocean. The amounts of inflow and outflow depend on the hydrogeologic properties of the aquifers and the groundwater gradients at the basin boundaries.

2.2 QUANTITIES OF REPLENISHMENT WATER

Current and historical quantities of water conserved (replenished) in the Montebello Forebay Spreading Grounds are presented on **Table 2.1**. Current and historical seawater

barrier injection amounts are shown on **Table 2.2**. The calculations required to determine the total quantity of artificial replenishment water necessary for the CWCB prior to each Water Year are outlined in the District's annual *Engineering Survey and Report* (ESR).

At the Montebello Forebay Spreading Grounds (**Table 2.1**), the following are noted for the quantities of replenishment water for WY 2006-2007:

- Total water conserved in the Rio Hondo System (consisting of the Rio Hondo Spreading Grounds and percolation behind the Whittier Narrows Dam) and the San Gabriel System (consisting of the unlined San Gabriel River south of the Whittier Narrows Dam and the San Gabriel River Spreading Grounds) was 96,749 acre-feet (AF). This is less than the historical running average of 127,534 AF (WY 1963-1964 through 2006-2007).

- The quantity of local water conserved during WY 2006-2007 was 11,495 AF, also less than the historical running average of 50,850 AF, and less than the previous 5-year average of 63,266 AF (WY 2001-2002 through 2005-2006).

- The quantity of imported water conserved during WY 2006-2007 was 40,214 AF. This is lower than the long-term running average of 43,853 AF, but higher than the previous 5- year average of 29,936 AF.

- The quantity of recycled water conserved during WY 2006-2007 was 45,039 AF. This is higher than the long-term running average of 32,875 AF and higher than the previous 5-year average of 43,937 AF.

- In addition to the water sources shown on **Table 2.1**, the Montebello Forebay received an estimated 924 AF of recharge due to infiltration of precipitation falling on the forebay floor, and an estimated 23,367 AF of groundwater underflow from San Gabriel Valley. The total replenishment was therefore 121,040 AF, of which 37.2%

was recycled water. The three-year average recycled water used was 38,855 AF, and the three-year averaged percent recycled water component was 22.5 %.

At the seawater intrusion barriers (**Table 2.2**), the following trends are noted for the quantities of artificial replenishment water for WY 2006-2007:

- At the West Coast Basin Barrier, 15,333 AF were injected, which included 4,373 AF of imported water and 10,960 AF of recycled water (71.5%). Up to 75% recycled water injection is currently permitted at the West Coast Basin barrier. The long-term injection average from WY 1963-1964 through 2006-2007 was 19,993 AF. The previous 5-year average (2001-2002 through 2005-2006) was 12,726 AF. Recycled water has been injected since 1994-1995 at the West Coast Basin Barrier.

- At the Dominguez Gap Barrier, 8,709 AF were injected of which 7,259 AF was imported and 1,450 AF was recycled (16.6%). Up to 50% recycled water and no more than 5 million gallons per day (MGD) is currently permitted. The long-term average from WY 1970-1971 through 2006-2007 was 6,121 AF, and the previous 5-year average (2001-2002 through 2005-2006) was 7,731 AF. Recycled water has been injected since 2005-2006 at the Dominguez Gap Barrier.

- At the Alamitos Barrier, both WRD and Orange County Water District (OCWD) provide injection water; WRD for wells on the Los Angeles County side, and OWCD for wells on the Orange County side. During WY 2006-2007 a total of 2,495 AF were injected into the barrier system, 1,787 AF by WRD (1,568 AF imported and 219 AF recycled) and 708 AF by OCWD (543 AF imported and 165 AF recycled). The total recycled water contribution was 18.2%, and up to 50% is allowed by permit. The long-term average for total injection from WY 1964-65 through 2006-2007 was 4,988 AF, and the previous 5-year average (2001-02 through 2005-06) was 4,041 AF. Recycled water has been injected since 2005-2006 at the Alamitos Barrier.

2.3 QUALITY OF REPLENISHMENT WATER

This section discusses water quality data for key parameters in WRD replenishment water and local surface water. Although numerous other constituents are monitored, the constituents reported here are the ones found to be most prevalent at elevated levels or are of current regulatory interest. The data are classified according to their sources. The key water quality parameters of this discussion are: total dissolved solids (TDS), hardness, sulfate, chloride, nitrogen, iron, manganese, trichloroethylene (TCE), tetrachloroethylene (PCE), total organic carbon (TOC), and perchlorate. Monitoring the concentrations of these constituents is necessary for an understanding of the general chemical nature of the recharge source, and its suitability for replenishing the groundwater basins. A brief description of each parameter follows. Various criteria are used in discussing water quality. A Notification Level (NL) and Response Level (RL) are non-enforceable health-based advisory levels established by the CDPH based on preliminary review of health effects studies for which enforceable levels have not been established. Notification Levels and Response Levels replaced State Action Levels effective January 1, 2005 per California Health and Safety Code Section 116455. A Public Health Goal (PHG) is an advisory level that is developed by the Office of Environmental Health Hazard Assessment (OEHHA) after a thorough review of health effects and risk assessment studies. A Primary Maximum Contaminant Level (MCL) is an enforceable drinking water standard that CDPH establishes after health effects, risk assessments, detection capability, treatability, and economic feasibility are considered. A Secondary MCL is established for constituents that impact aesthetics of the water, such as taste, odor, and color, and do not impact health. It should also be noted that constituents with NLs often are considered unregulated contaminants for which additional monitoring may be required to determine the extent of exposure before PHGs and MCLs are established.

- Total Dissolved Solids (TDS): TDS is a measure of the total mineralization of water and is indicative of general water quality. In general, the higher the TDS, the less desirable a given water supply is for beneficial uses. The recommended Secondary

MCL for TDS is 500 milligrams per liter (mg/L). The upper limit (Secondary) MCL is 1,000 mg/L, and the short-term (Secondary) MCL is 1,500 mg/L.

- Hardness: For most municipal uses, hardness (a measure of calcium and magnesium ions that combine with carbonates to form a precipitate in water) is an important mineral characteristic of water. Some degree of hardness is considered to be beneficial to human health; studies suggest that it helps to lower cholesterol levels. Excessive hardness is undesirable because it results in increased consumption of cleaning products, scale on pipes, and other undesirable effects. There is no MCL for hardness, but generally waters are considered soft when it is less than 75 mg/L and very hard when greater than 300 mg/L.
- Sulfate: Sulfate is generally not a water quality concern in the CWCB. In excess amounts, it can act as a laxative. CDPH has established a Secondary MCL for sulfate at 250 mg/L and up to 600 mg/L for short-term use. Sulfate is, however a useful water quality constituent in the CWCB for use in tracking flow and observing travel times of artificial recharge water. Colorado River water and recycled water used for recharge in CWCB have relatively higher sulfate concentrations than native groundwater and State Water Project water with relatively lower sulfate concentrations.
- Chloride: Chloride in reasonable concentrations is not harmful to human health. It is the characteristic constituent used to identify seawater intrusion. While recharge sources contain moderate concentrations of chloride, these concentrations are well below the Secondary MCL for chloride of 250 mg/L. Water containing chloride concentrations above this level begins to taste salty. When the ratio of chloride to other anions such as sulfate and bicarbonate becomes high, there is a strong indication of seawater intrusion or possible industrial brine impact to groundwater.
- Nitrogen species: CDPH Primary MCLs limit two forms of nitrogen, nitrite and nitrate, in drinking water. Nitrate cannot exceed concentrations of 45 mg/L (measured as Nitrate), corresponding to 10 mg/L as Nitrogen. Nitrite is limited to 1 mg/L as Nitrogen. The combined total of nitrite and nitrate cannot exceed 10 mg/L. These constituents are of concern because they can cause anoxia in infants. When consumed in excess of these limits, they reduce the uptake of oxygen causing

shortness of breath, lethargy, and a bluish color.

- Iron: Typically, iron occurs naturally in groundwater. It is also leached from minerals or steel pipes as rust. Small concentrations of iron in water can affect the water's suitability for domestic or industrial purposes. The Secondary MCL for iron in drinking water is 0.3 mg/L because iron in water stains plumbing fixtures and clothing, encrusts well screens, clogs pipes, and may impart a salty taste. It is considered an essential nutrient, important for human health, and does not pose significant health effects except in special cases. Some industrial processes cannot tolerate more than 0.1 mg/L iron.
- Manganese: Manganese, also naturally occurring, is objectionable in water in the same general way as iron. Stains caused by manganese are black and are more unsightly and harder to remove than those caused by iron. The Secondary MCL for manganese is 50 micrograms per liter (µg/L). Like iron, it is considered an essential nutrient for human health.
- Trichloroethylene (TCE): TCE is a solvent used in metal degreasing, textile processing, and dry cleaning. Because of its potential health effects, it has been classified as a probable human carcinogen. The Primary MCL for TCE in drinking water is 5 µg /L.
- Perchloroethlene (PCE): PCE (also known as tetrachloroethylene, perc, perclene, and perchlor) is a solvent used heavily in the dry cleaning industry, as well as in metal degreasing and textile processing. Like TCE, PCE is a probable human
- carcinogen. The Primary MCL for PCE in drinking water is 5 µg/L.
- Total Organic Carbon: Total organic carbon (TOC) is the broadest measure of all organic molecules in water. TOC can be naturally-occurring, wastewater-derived, or a combination of both (National Research Council, 1998). While there is no MCL established for TOC, regulators are generally concerned with wastewater-derived TOC as a measurable component of recycled water. It is a surrogate parameter which may indicate the potential for production of disinfection byproducts and the presence of emerging contaminants.
- Perchlorate: Perchlorate is used in a variety of defense and industrial applications, such as rockets, missiles, road flares, fireworks, air bag inflators, lubricating oils,

tanning and finishing leather, and the production of paints and enamels. When ingested, it can inhibit the proper uptake of iodide by the thyroid gland, which causes a decrease in hormones for normal growth and development and normal metabolism. In October, 2007 the CDPH finalized a new MCL at 6 µg /L for perchlorate.

Quality of Imported Water

As stated previously, treated imported water is used at the seawater barriers. This water meets all drinking water standards and is suitable for direct injection. Average water quality data for treated imported water are presented in **Table 2.3**.

Untreated imported water ("raw water") is used for recharge at the Montebello Forebay spreading grounds. The untreated imported water can be 100% State Project Water or a blend of State project Water and Colorado River Water due to Colorado River Water's relatively higher concentrations of TDS and other salts.

The average TDS concentration of Colorado River water was 671 mg/L in 2006. The average TDS concentration of State Project Water was 245 mg/L.

The average hardness of untreated Colorado River water was 325 mg/L. The average hardness of untreated State Project Water was 119 mg/L.

Nitrate averages were below the detection limit of 0.4 mg/L in Colorado River water and the average nitrate concentration of State Project Water was 0.47 mg/L. Recently and historically, both Colorado River and State Project Water nitrate concentrations have been far below the MCL.

The average iron and manganese concentrations of untreated Colorado River Water have remained below detection limits. Iron and manganese in State Project Water was also below detection limits. Both Colorado River and State Project Water iron and manganese concentrations have historically been below the MCL.

The average chloride and sulfate concentrations of Colorado River Water and State Project Water have not changed significantly over the past several years. State Project Water chloride and sulfate concentrations have historically been below their respective MCLs as has the chloride concentration in Colorado River Water. The average sulfate concentration in Colorado River Water exceeded the secondary MCL at 270 mg/L in 2006, however as described above, Colorado River Water is blended with State Project Water for artificial recharge in the CWCB.

Total organic carbon was reported at 3 mg/L in both untreated Colorado River and State Project Water. According to the MWD, TCE and PCE have not been detected in Colorado River Water or State Project Water during the 2006 reporting period. Perchlorate was not detected in untreated Colorado River Water or State Project Water in 2006.

Quality of Recycled Water

Recycled water is introduced into the CWCB through percolation and injection. In the Montebello Forebay, recycled water from the Whittier Narrows Water Reclamation Plant (WRP), San Jose Creek East WRP, San Jose Creek West WRP, and Pomona WRP is diverted into spreading basins where it percolates into the subsurface. The water quality from these WRPs is carefully controlled and monitored, as required by permits, and typically shows little variation over time. **Table 2.3** presents average water quality data from these WRPs. All constituents listed have remained stable over recent Water Years. Furthermore, TCE, PCE and perchlorate have either not been detected or have been detected well below their respective MCL in recycled water from these four WRPs.

Recycled water from the West Basin Municipal Water District WRP undergoes advanced treatment using microfiltration, reverse osmosis, ultraviolet light, and advanced oxidation with hydrogen peroxide, and is blended with imported water, then injected at the West Coast Barrier. This water is treated to meet or exceed drinking water standards and is suitable for direct injection. The blend of recycled water and imported water is injected to prevent the intrusion of sea water and to replenish the groundwater basins. The West

Basin Municipal Water District received approval from the RWQCB to increase the percentage from 75 percent up to 100 percent but currently operates below this percentage. **Table 2.3** presents average water quality data for this injected recycled water.

The Alamitos Seawater Barrier receives a blend of imported water and recycled water from the Leo J. Vander Lans Treatment Facility, owned by WRD. Disinfected tertiary effluent from the Long Beach Water Reclamation Plant of CSDLAC is further treated with microfiltration, reverse osmosis, and ultraviolet light. The water meets drinking water quality standards and also other stringent requirements required by the regulatory agencies for injection into a seawater barrier. This project began deliveries in October 2005. **Table 2.3** presents average water quality of the recycled water prior to blending.

Undisinfected tertiary effluent from the City of Los Angeles Terminal Island Treatment Plant (TITP) is treated further at the Advanced Water Treatment Facility (AWTF) with microfiltration, reverse osmosis, and disinfection with chlorine to produce recycled water. The water meets drinking water quality standards and also other stringent requirements by regulatory agencies for injection into a seawater barrier. It is blended with treated imported water and the delivered to the Dominguez Gap Seawater Barrier. Deliveries began in February 2006. **Table 2.3** presents average water quality data of the recycled water prior to blending.

Quality of Stormwater

As discussed in Section 2.1, stormwater infiltrates to some degree throughout the District. It is also intentionally diverted from the major storm channels and percolated along with imported and recycled water at the Montebello Forebay Spreading Grounds. Periodic stormwater quality analyses have been performed by LACDPW throughout the history of operations at the Montebello Forebay Spreading Grounds. Average stormwater quality data are presented on **Table 2.3**. The average TDS, hardness, sulfate, chloride, nitrate, TCE, and PCE in stormwater in the Montebello Forebay are relatively low. TOC in averaged 15.23 mg/L which is generally high in relation to other source waters.

SECTION 3
GROUNDWATER PRODUCTION, WATER LEVELS AND STORAGE CHANGE

Groundwater production (pumping) for municipal, agricultural, and industrial use provides about 40 percent of the total annual water demand in the CWCB. It is WRD's responsibility to ensure sufficient supplies of groundwater to meet those demands through replenishment at the spreading grounds, the barrier wells, the In-Lieu Program, and through other means. In order to properly manage the groundwater resource, WRD tracks the amount of pumping that occurs in the basins, measures the water levels in the aquifers, and calculates the change in groundwater storage in the basins. The remainder of this Section presents the latest information on these items.

3.1 GROUNDWATER PRODUCTION

Prior to the 1960s, groundwater production in the CWCB was unregulated and continued to increase as the population grew. Although the natural safe yield of the basins was estimated at 173,000 acre-feet per year (AFY) by the DWR (1962), pumping was nearly double this amount. Between 1934-1935 and 1956-1957 the annual pumping in the basins ranged from 206,800 AF to 331,600 AF, averaging 281,904 AFY (DWR, 1962). The result of pumping exceeding natural recharge was severe basin overdraft, loss of groundwater from storage, declining water levels, and seawater intrusion.

To remedy this overdraft problem, three main actions occurred; 1) In the early 1950s the Los Angeles County Flood Control District began installing seawater barrier injection wells to halt the salt water intrusion; 2) In 1959 the WRD was established to provide artificial replenishment water to make up the overdraft; and 3) In the early 1960s the groundwater basins were adjudicated to regulate pumping at 64,468.25 AFY in the West Coast Basin and 217,367 AFY in the Central Basin, for a total allowable pumping in both basins of 281,835 AFY.

The adjudicated pumping rights were set higher than the natural groundwater replenishment with WRD being the entity to make up the difference. WRD purchases artificial replenishment water in the form of imported water from MWD's member agencies or highly treated recycled water from waste water treatment facilities to be put into the ground to make up the overdraft. The amounts and qualities of WRD's replenishment water were discussed in Section 2. A replenishment assessment is levied on the pumping of groundwater in the CWCB to collect the funds necessary to purchase the replenishment water. Therefore, the users of the groundwater pay to replace the groundwater.

During WY 2006-2007, groundwater production in the CWCB was 235,770 AF, of which 198,115 AF occurred in the Central Basin and 37,655 AF occurred in the West Coast Basin. This represents a 3.4% increase from the previous year (3.6% increase in the Central Basin and a 2.5% increase in the West Coast Basin). As a comparison, over the previous five years production has averaged 239,557 AFY (194,003 AFY in the Central Basin and 45,554 AFY in the West Coast Basin). **Table 3.1** presents the historical groundwater production amounts for the CWCB. **Figure 3.1** illustrates the distribution and relative amounts of pumping throughout the CWCB during the Water Year.

3.2 GROUNDWATER LEVELS

Groundwater levels are an indication of the amount of water in the basins. They indicate areas of recharge and discharge from the basins. They reveal which way the groundwater is moving so that recharge water or contaminants can be tracked. They are used to determine when additional replenishment water is required and are used to calculate storage changes. Groundwater levels can also be used to demonstrate possible source areas for saltwater intrusion or show the effectiveness of seawater barrier wells.

WRD tracks groundwater levels throughout the year by measuring the depth to water in production wells and monitoring wells located throughout the CWCB. In order to

capture the daily and seasonal variations in water levels, WRD has installed automatic data-logging equipment in numerous wells to collect water levels every six hours. WRD also obtains water level data from cooperating entities such as the pumpers, DWR, and LACDPW, who also collect water levels from their wells. These data are entered into WRD's GIS for analysis. Groundwater elevation contour maps and water level hydrographs are prepared to illustrate the current and historical groundwater levels in the basins. The change in groundwater storage is determined based on water level fluctuations across the basins.

Figure 3.2 is a contour map showing the groundwater elevations for spring 2007. Water levels in the spring (March/April) are normally the highest levels of the year due to the winter/spring wet season that provides natural replenishment water, overall reduced water demand, and the pumpers' use of MWD seasonal water if available. The figure shows that in the Central Basin, the highest water levels are in the Montebello Forebay; water levels decrease to the south and west towards the Long Beach area and the Los Angeles Forebay, respectively. In the West Coast Basin, water levels are highest along the West Coast Basin Barrier Injection Project, and decrease to the east where they are at their lowest elevation in Gardena between the Charnock Fault and Newport Inglewood Uplift, both of which are geologic structural features that restrict groundwater flow.

Figure 3.3 is a contour map for fall 2007. Water levels in the fall (September/October) are normally the lowest of the year because of the higher amounts of pumping and the reduction in natural replenishment during summer and fall dry season. Water level highs and lows and flow directions are similar to the spring map except that water levels are lower, especially in the Long Beach area. As shown in **Figure 3.4**, water levels between spring and fall 2007 varied little in the West Coast Basin, but in the Central Basin they varied (decreased) as much as 100 feet in the Long Beach area. This wide swing in water levels is observed annually due to increased seasonal pumping and that confined aquifers like those in the Long Beach area show pronounced water level (pressure) changes compared to unconfined areas like the Montebello and Los Angeles Forebays.

Figure 3.5 illustrates the monthly groundwater production quantities for WY 2006-2007. In the Central Basin, monthly pumping ranged from about 12,400 AF in December to 21,300 AF in August. The seven month average between October and April is 13,912 AF/month compared to the 5 month average between May and September of 20,146 AF/month. This difference of about 6,000 AF/month mostly explains the large water level fluctuations between spring and fall. In the West Coast Basin, pumping fluctuations were less pronounced, averaging 3,138 AF/month throughout the year.

WRD also uses hydrographs to track the changes in water levels in wells over time. Hydrographs reveal periods of dry years, over-pumping, water level declines, and loss from storage versus times of surplus water, reduced pumping, and water level recovery. For example, **Figures 3.6 through 3.9** are long-term hydrographs that have water level data going back to the 1930s and 1940s in the Montebello Forebay, Los Angeles Forebay, Central Basin Pressure Area, and West Coast Basin, respectively. The hydrographs all illustrate the general history of groundwater conditions in the CWCB: 1) Steep water level declines occurred in the 1930s through 1950s as a result of excessive pumping (overdraft); 2) In the mid-1950s to early 1960s there was a sharp reversal in this downward trend due to initiation of resource management policies, water levels rose through the 1970s and 1980s in response to reduced pumping, artificial replenishment by WRD, and seawater barrier construction and injection; and 3) over the past 10 to 15 years water levels have remained relatively stable as replenishment has balanced withdrawal. In the West Coast Basin water levels continue to rise up to 4 feet per year, presumably due to the reduction in pumping that has occurred there recently.

Hydrographs that track annual water level changes are also used for detailed, aquifer-specific information. The data for these annual hydrographs are collected from WRD's network of nested monitoring wells. **Table 3.2** presents manual groundwater level measurements collected from the District's nested monitoring wells during the 2006-2007 WY. **Figures 3.10** through **3.13** are annual hydrographs of selected wells for the WY 2006-2007 for the Montebello Forebay, Los Angeles Forebay, Central Basin Pressure Area, and West Coast Basin, respectively. These hydrographs demonstrate the

water elevation differences between individual aquifers at each nested well location. The differences in elevation are caused when a well taps an aquifer that is not in direct hydraulic communication with another aquifer at that same location due to the presence aquitards, and due to the influence of recharge or discharge (i.e. pumping wells) in one aquifer that is not present in another. Observations from **Figures 3.10** through **3.13** are explained below:

Figure 3.10 is a hydrograph for WRD's Rio Hondo #1 nested monitoring well located in the Montebello Forebay at the southeast corner of the Rio Hondo Spreading Grounds. It has six individual wells (zones) that are screened in the following aquifers (from shallowest to deepest); Gardena, Lynwood, Silverado, and Sunnyside (3 different zones) with depths ranging from 140 feet below ground surface (bgs) to 1,130 feet bgs. Because this well is in the Montebello Forebay, where the aquifers are in general hydraulic communication with each other, water level responses in all of the wells are similar and respond to the seasonal highs and lows caused by recharge and pumping. Water elevations are lowest in Zone 4, the Silverado Aquifer, suggesting that this aquifer is the most heavily pumped in the area. Water levels in Zone 4 decreased during the Water Year by about fifteen feet.

Figure 3.11 is a hydrograph for WRD's Huntington Park #1 nested monitoring well located in the Los Angeles Forebay near the intersection of Slauson Avenue and Alameda Street. It has five individual zones that are screened in the following aquifers (from shallowest to deepest); Gaspur, Exposition, Gage, Jefferson, and Silverado with depths ranging from 134 feet bgs to 910 feet bgs. Only four of the zones are shown on the figure because the shallowest well (screened from 114 feet to 134 feet in the Gaspur Aquifer) is dry, and therefore no water elevations can be shown on the graph. The large separation in water levels between Zone 4 and the deeper three zones suggest the presence of a low permeability aquitard(s) between them that hydraulically isolates the Exposition Aquifer from the deeper aquifers. Water levels in the deepest 2 zones in the Silverado and Jefferson aquifers were generally similar and trended downward through the year, decreasing by about 2 feet during the year.

Figure 3.12 is a hydrograph for WRD's Long Beach #1 nested monitoring well located in the Central Basin Pressure Area about a half mile south of the intersection of the 605 Freeway and Willow Street. It has 6 individual zones that are screened in the following aquifers (from shallowest to deepest); Artesia, Gage, Lynwood, Silverado, and Sunnyside (2 zones) with depths ranging from 175 feet bgs to 1,450 feet bgs. Because the Central Basin Pressure Area has multiple confined aquifers and experiences heavy seasonal pumping cycles, water level fluctuations can be great. For example, in WY 2006-2007, water levels in Zone 3, representing the Silverado Aquifer, varied about 80 feet throughout the year, from a high of 10 feet below sea level in March to a low of about 90 feet below sea level in September. Water levels of the six zones generally followed the same trend throughout the year, with lows in the late summer and fall and highs in spring. An abrupt decrease in water levels began in late April as seasonal pumping commenced (recall **Figure 3.4**). Water levels in Zone 3 finished the year 16 feet lower than at the start of the year.

Figure 3.13 is a hydrograph for WRD's Carson #1 nested monitoring well located in the West Coast Basin about 1.5 miles northwest of the intersection of the 405 Freeway and Alameda Street. It has 4 individual zones that are screened in the following aquifers (from shallowest to deepest); Gage, Lynwood, Silverado, and Sunnyside with depths ranging from 270 feet bgs to 1,110 feet bgs. Water levels in Zone 1 track very similar to Zone 2 throughout the year, and Zone 3 tracks with Zone 4. A difference of about 35 feet in groundwater elevation between the upper two zones and lower two zones suggest the presence of a low permeability aquitard(s) between them that hydraulically isolates the shallower aquifers from the deeper ones. Water levels in Zone 2 (Silverado Aquifer) finished the year three feet lower than at the start of the year.

The results of groundwater level changes observed throughout the Water Year are illustrated on **Figure 3.14**, which is a water level change map. In the Central Basin, water levels were 5 to 25 feet lower at the end of the year than at the start, with the exception of the northwestern portion of the Central Basin. In the West Coast Basin

water levels remained relatively flat on the western portion, and dropped slightly in the eastern portion in the Gardena area between the Newport Inglewood Uplift and Charnock Fault, which act as barriers to groundwater flow. The maximum water level drop was observed at the District's La Mirada monitoring well located on the eastern margin of the Central Basin with a decrease of approximately 25 feet. No areas of the CWCB showed a significant increase in groundwater levels during 2006-2007. Overall, the average water level decrease across the District was 5 to 10 feet.

3.3 GROUNDWATER STORAGE CHANGE

Groundwater enters the CWCB through natural and artificial replenishment and leaves the basins primarily through pumping. If the amount of groundwater entering the basins equals the amount leaving, then water levels remain relatively constant and the basin is at "steady state". When the amount of groundwater entering the basins exceeds the amount leaving, then there is a surplus and water levels rise and the amount of groundwater in storage increases. Conversely, when the amount of groundwater leaving the basins exceeds the amount entering, then there is a deficit (overdraft) and water levels drop and the amount of groundwater in storage is reduced.

The change in groundwater storage over the course of the Water Year is determined by calculating the water level changes and multiplying those values by the storage coefficients of the aquifers. Water level changes were obtained from WRD's nested monitoring wells and are presented as **Figure 3.14**. The aquifer storage coefficients were obtained from the detailed MODFLOW computer model of the District prepared for WRD by the USGS (Reichard et al, 2003). Groundwater storage changes are relatively small in the confined aquifers because the aquifers are fully saturated and storage coefficients are generally small (averaging about 0.0005). Water level changes in these areas are really pressure changes versus the actual filling or draining of aquifer materials. That is why a very large water level change can be observed and yet there is very little corresponding storage change. The most significant storage changes occur in the Montebello and Los Angeles forebay areas, which have unconfined aquifers with storage

coefficient (specific yield) values on the order of 0.075 to 0.15. Water level changes in these areas are the result of the filling or draining of sediments and can have relatively large storage changes with relatively small water level changes.

Based on the calculations of the water level change map and the storage coefficient grids from the model, WRD has determined that 59,000 AF of water was removed from storage in the CWCB during the WY 2006-2007.

SECTION 4
GROUNDWATER QUALITY

This section discusses the vertical and horizontal distribution of several key water quality parameters based on data from WRD's monitoring wells for WY 2006-2007 and purveyor's production wells for WYs 2004-2007. Semi-annual groundwater samples from nested wells were submitted to a CDPH-certified laboratory for analytical testing for general water quality constituents, known or suspected contaminants, and special interest constituents. Water quality data for production wells were provided by the CDPH based on results submitted over the past three years by purveyors for their Title 22 compliance. **Figures 4.1 through 4.32** are maps which present water quality data for key parameters and special interest constituents in the WRD nested monitoring wells and production wells in the CWCB. The figures present the maximum values for data where more than one result is available over the time frame. **Table 1.1** presents well construction information and aquifer designations for WRD wells. **Table 4.1** categorizes groundwater at the WRD wells into major mineral water quality groups. **Table 4.2** lists the water quality analytical results alphabetically by well location for the wells in the Central Basin during WY 2006-2007. **Table 4.3** lists the water quality analytical results alphabetically by well location for the wells in the West Coast Basin during WY 2006-2007.

4.1 MAJOR MINERAL CHARACTERISTICS OF GROUNDWATER IN THE CENTRAL AND WEST COAST BASINS

Major minerals data obtained from laboratory analyses were used to characterize groundwater from discrete vertical zones of each WRD well (**Table 4.1**). Research by the USGS has provided three distinct groupings of groundwater compositions. Group A groundwater is typically calcium bicarbonate or calcium bicarbonate/sulfate dominant. Group B groundwater has a typically calcium-sodium bicarbonate or sodium bicarbonate character. Group C has a sodium chloride character. A few of the WRD wells yield

groundwater samples which do not fall into one of the three major groups and are grouped separately.

Groundwater from Group A likely represents recent recharge water containing a significant percentage of imported water. Groundwater from Group B represents older native groundwater replenished by natural local recharge. Groundwater from Group C represents groundwater impacted by seawater intrusion or connate saline brines. **Table 4.1** lists the groundwater group for each WRD nested monitoring well. Comparison of groundwater groups with well locations indicates that, in general, Group A groundwater is found at and immediately downgradient from the Montebello Forebay Spreading Grounds in all but the deepest zones. Group B groundwater is found farther down the flow path of the Central Basin and inland of the salt water wedge and injected water in the West Coast Basin. Group C water is generally found near the coastlines or in deeper zones. Several wells, grouped as "Other" on **Table 4.1**, exhibit a chemical character range different from Group A, B, and C ranges and represents unique waters not characteristic of the dominant flow systems in the basins. The USGS is currently conducting trace element isotope analyses of water from these wells to identify their hydrogeologic source(s).

The major mineral compositions of water from the WRD nested monitoring wells sampled this Water Year have not changed substantially from previous years. It is expected that continued analysis will show gradual changes in major mineral compositions over time, as older native water is extracted from the basins and replaced by younger naturally and artificially replenished water.

4.2 TOTAL DISSOLVED SOLIDS (TDS)

TDS is a measure of the total mineralization of water and is indicative of general water quality. In general, the higher the TDS, the less desirable a given water supply is for beneficial uses. The Secondary MCL for TDS ranges from 500 milligrams per liter (mg/L), which is the recommended level, to an upper level of 1,000 mg/L, and to 1,500 mg/L, which is the upper level allowed for short-term use.

WRD nested monitoring well data for WY 2006-2007 indicate relatively low TDS concentrations for groundwater in the deeper producing aquifers of the Central Basin (**Figure 4.1**). TDS concentrations in the Central Basin ranged from 174 mg/L in Lakewood #1 zone 1, to 2,690 mg/L in Whittier #1 zone 1. In the Central Basin, Silverado Aquifer zones in 20 out of 25 WRD nested monitoring wells had very low TDS concentrations, below 500 mg/L. The Silverado aquifer zones in 24 out of 25 Central Basin wells tested contained less than the CDPH upper level for TDS of 1,000 mg/L. Generally, TDS concentrations above 1000 mg/L were limited to localized very deep or very shallow zones of Inglewood #2, Long Beach #1, Long Beach #2, Montebello #1, Whittier #1, and Whittier Narrows #1. The average TDS concentration for all WRD Central Basin monitoring wells tested in 2006-2007 is 510 mg/L.

In contrast, West Coast Basin nested monitoring well data show generally higher TDS concentrations. TDS in WRD nested monitoring wells in the West Coast Basin ranged from 190 mg/L in Carson #1 zone 1, to 13,900 mg/L in PM-4 Mariner zone 2. Only the most inland nested monitoring wells, Carson #1, Carson #2, Gardena #1, and Gardena #2 indicate TDS values below 500 mg/L consistently for zones below the shallowest. Wilmington #1 and Wilmington #2, located near the Dominguez Gap Barrier have significantly high TDS values, each with elevated TDS in multiple zones, including Silverado aquifer zones. Many zones of the Inglewood #1, Long Beach #8, and Lomita #1 nested monitoring wells exceed 750 mg/L with one or more zones greater than 1,000 mg/L. The average TDS concentration for all WRD West Coast Basin monitoring wells tested in 2006-2007 is 1,016 mg/L.

Figure 4.2 presents CDPH water quality data for TDS in production wells across the CWCB during WYs 2004-2007. In the Central Basin, TDS generally ranged between 250 and 750 mg/L over most of the basin. In a localized area along the San Gabriel River in the general vicinity of and downgradient of the Rio Hondo and San Gabriel River Spreading Grounds, many wells had TDS concentrations between 500 and 750 mg/L. A few wells in this area contained TDS in excess of 750 mg/L. Another

localized area in the northernmost portion of the Central Basin shows a grouping of production wells between 500 and 750 mg/L. Data from many of the production wells in the southernmost portion of the Central Basin indicated TDS less than 250 mg/L.

Data from West Coast Basin wells indicate that most drinking water wells in production had TDS concentrations below 750 mg/L. Several production wells located close to the coast in the Hawthorne/Torrance areas had TDS concentrations above 750 mg/L.

4.3 IRON

Typically, iron occurs naturally in groundwater. It is also leached from minerals or steel pipes as rust. Small concentrations of iron in water can affect the water's suitability for domestic or industrial purposes. The Secondary MCL for iron in drinking water is 0.3 mg/L because iron in water stains plumbing fixtures and clothing, encrusts well screens, clogs pipes, and may impart a salty taste. It is considered an essential nutrient, important for human health, and does not pose significant health effects except in special cases. Some industrial processes cannot tolerate more than 0.1 mg/L iron.

Dissolved iron in groundwater has historically been a water quality concern in portions of the CWCB. An abundant natural source of iron is present in the minerals making up the aquifers of the basins. The presence of dissolved iron (that is, iron dissolving from minerals into the groundwater) is controlled by a variety of geochemical factors discussed at the end of this section. In the Central Basin, iron in nested monitoring wells (**Figure 4.3**) ranged from less than the detection limit (numerous wells) to 9.1 mg/L (Whittier Narrows #1, zone 1). Iron was not detected in 13 wells and detected below the MCL in 11 wells in Silverado zones out of the 25 nested wells tested. In zones above or below the Silverado, iron was detected below the MCL in 19 out of the 25 Central Basin wells. Iron was detected above the MCL in only one Silverado zone (Pico #1, zone 3), and in only two wells above or below the Silverado (Inglewood #2, zones 1 and 2; and Whittier #1, zones 1 and 2).

In the West Coast Basin elevated iron occurs locally. Iron concentrations ranged from

less than the detection limit (numerous wells) to 1.1 mg/L (Hawthorne #1, zone 6). Iron is generally detected in one or more zones at all 15 well locations at concentrations below the MCL. One well in the West Coast Basin had an iron concentration in the Silverado exceeding the MCL (Inglewood #1, zone 3). Five wells had iron concentrations above the MCL in shallow zones above the Silverado.

Figure 4.4 presents CDPH water quality data for iron in production wells across the CWCB during WYs 2004-2007. The data show elevated iron concentrations in many production wells throughout the CWCB and some purveyors opt to treat groundwater to remove the iron. Typical treatment is oxidation of relatively soluble ferrous to less soluble ferric iron, followed by precipitation and filtering. There does not appear to be a distinct pattern to the occurrence of elevated iron. Production wells exhibiting high iron concentrations appear in and around many with non-detectable iron.

Data from CDPH for the West Coast Basin indicate 42 of 251 production wells tested and most located in the northern portion of the Basin, have iron concentrations exceeding the secondary MCL. Production wells in the southern and western portions of the West Coast Basin generally have iron concentrations below the MCL.

Although a definitive source cannot be identified for the various elevated iron concentrations described above, some general geochemical relationships for dissolved iron in groundwater may apply to the iron distribution patterns. First, dissolved iron tends to form under reducing groundwater conditions. Groundwater having a pH value between 6 and 8 can be sufficiently reducing to retain as much as 50 mg/L of dissolved ferrous iron at equilibrium, when bicarbonate activity does not exceed 61 mg/L (Hem, 1992). Second, iron is a common component of many igneous rocks and is found in trace amounts in virtually all sediments and sedimentary rocks—therefore, abundant natural sources of iron are present throughout the CWCB and under specific geochemical conditions, the natural iron in the sediments can dissolve into the groundwater. Third, water may dissolve any subsurface iron casing, piping, etc. (the main materials of older production wells and pumps, and distribution systems), thus production wells and

distribution piping may contribute iron to water supplies.

4.4 MANGANESE

Manganese, like iron, is also naturally occurring and is objectionable in water in the same general way as iron. Stains caused by manganese are black and are more unsightly and harder to remove than those caused by iron. The Secondary MCL for manganese is 50 µg/L. Like iron, it is considered an essential nutrient for human health.

Manganese concentrations (**Figure 4.5**) in the WRD nested monitoring wells exhibit widespread vertical and horizontal variations across the CWCB. In the Central Basin, manganese ranges from below the detection limit (numerous wells) to 630 µg/L (Whittier Narrows #1 zone 1). In the southern portion of the basin, elevated manganese typically occurs in shallower aquifers above the Silverado producing zones. In the northern portion of the Central Basin, manganese is present in shallow zones, the Silverado zones, and the deeper zones. Six nested monitoring wells in the Central Basin had Manganese concentrations exceeding the MCL in the Silverado including Commerce #1, Compton #1, Huntington Park #1, Montebello #1, Willowbrook #1, Whittier #1, and Whittier #2.

In the West Coast Basin, manganese concentrations in nested monitoring wells ranged from below the detection limit (numerous wells) up to 1,200 µg/L (PM-4 Mariner zone 2). In the southern portion of the West Coast Basin, like iron, elevated manganese concentrations were limited to aquifer zones above the Silverado. In the western and northern portions of the West Coast Basin, manganese concentrations typically exceed the MCL in over half of the zones with concentrations exceeding the MCL within, above, and below the Silverado aquifer zone.

Figure 4.6 presents CDPH water quality data for manganese in production wells across the CWCB during WYs 2004-2007. In the Central Basin data show a large number of wells having elevated manganese concentrations with 51 out of 183 production wells tested exceeding the MCL. The production wells with elevated manganese tend to be

widespread, but there does appear to be an area around and south of the Montebello Forebay Spreading Grounds and a second area at the southern end of the Central Basin where manganese is consistently below the MCL. In the West Coast Basin 16 out of 24 production wells tested had concentrations of manganese exceeding the MCL. The wells tend to be somewhat clustered in the northern portion of the basin. Typical treatment is oxidation followed by filtration, similar to treatment used for iron.

4.5 NITRATE

CDPH Primary MCLs limit two forms of nitrogen in drinking water, nitrite and nitrate. Nitrate cannot exceed concentrations of 45 mg/L (measured as Nitrate), corresponding to 10 mg/L as Nitrogen. Nitrite is limited to 1 mg/L as Nitrogen. The combined total of nitrite and nitrate cannot exceed 10 mg/L. These constituents are of concern because they can cause anoxia in infants. When consumed in excess of these limits, they reduce the uptake of oxygen causing shortness of breath, lethargy, and a bluish color.

Nitrate concentrations in groundwater are a concern because their presence indicates that a degree of contamination has occurred due to the degradation of organic matter. Native groundwater typically does not contain nitrate. It is usually introduced into groundwater from agricultural practices such as fertilizing crops or lawns and leaching of animal wastes. Low concentrations of nitrogen compounds, including nitrate and nitrite, are below regulatory and permitted levels in treated recycled water and may contribute nitrate to groundwater. Typically, organic nitrogen and ammonia are the initial byproducts of the decomposition of human or animal wastes. Upon oxidation the organic nitrogen and ammonia are converted first to nitrite and then nitrate ions in the subsurface. A portion of the nitrite and nitrate are converted to nitrogen gas and hence are returned to the atmosphere. Nitrate itself is not harmful; however, it can be converted back to nitrite, which can be harmful.

Figure 4.7 presents nitrate (as nitrogen) water quality data for nested monitoring wells in the CWCB during WY 2006-2007. In the Central Basin, nitrate (as nitrogen) concentrations ranged from below the detection limit (numerous wells) to 14 mg/L

(Los Angeles #1 zone 5). Nested monitoring wells in the vicinity of the Montebello Forebay Spreading Grounds indicate concentrations of nitrate slightly above detection limits but below the MCL. Rio Hondo #1 and Pico #2 show detectable concentrations of nitrate from the shallowest zones down to Zones 3 and 1 respectively. South Gate #1, Downey #1, and Cerritos #2 show detectable concentrations in one or more of the middle zones, which are directly down the flow path from the spreading grounds, however Silverado and deeper zones of nested wells more distant from the spreading grounds have no detectable concentrations of nitrate. The detectable but relatively low concentrations of nitrate at and near the spreading grounds may be due to the local water and/or recycled water component of recharge at the spreading grounds. Nitrate is also observed in shallow zones at Los Angeles #1, Huntington Park #1, Commerce #1, Montebello #1, Pico #1, Norwalk #2, Whittier #1, Whittier #2, Whittier Narrows #1, and La Mirada #1. These shallow occurrences of nitrate, away from the spreading grounds, may be attributed to local surface recharge from former agricultural activities prior to the extensive land development that began in the 1950s.

In the West Coast Basin nested monitoring wells, nitrate concentrations ranged from below the detection limit (numerous wells) to 25 mg/L (Chandler #3, zone 2). Concentrations exceeding the nitrate MCL included the shallowest zones of Chandler #3, and Gardena #1. Detections below the MCL in the shallowest zone at Hawthorne #1 and Inglewood #1 were observed. As in the Central Basin, shallow zone occurrences of nitrate with deeper zones below detection limits may be attributable to local surface recharge from former agricultural activities prior to the extensive land development that began in the 1950s.

Figure 4.8 presents CDPH water quality data for nitrate in production wells across the CWCB during WYs 2004-2007. Detectable concentrations below the MCL were generally located in the vicinity and downgradient of the San Gabriel River and Rio Hondo Spreading Grounds of the Montebello Forebay, and in several scattered locations in the northwestern portion of the Central Basin. Production wells in the southern portion of the Central Basin and all of the West Coast Basin show relatively low nitrate

concentrations below 3 mg/L. The nitrate MCL was not exceeded in any production well in the CWCB during the 2004-2007 period. Like the nitrate observed in the nested monitoring wells, nitrate in production wells may be attributable to local surface recharge from agricultural activities prior to the extensive development that began in the 1950s.

4.6 HARDNESS

For most municipal uses, hardness (a measure of calcium and magnesium ions that combine with carbonates to form a precipitate in water) is an important mineral characteristic of water. Some degree of hardness is considered to be beneficial to human health; studies suggest that it helps to lower cholesterol levels. Excessive hardness is undesirable because it results in increased consumption of cleaning products, scale on pipes, and other undesirable effects. There is no MCL for hardness, but generally waters are considered soft when it is less than 75 mg/L and very hard when greater than 300 mg/L.

Figure 4.9 presents water quality data for total hardness in WRD nested monitoring wells in the CWCB during WY 2006-2007. In the Central Basin total hardness ranged from 6.4 (Long Beach 1 zone 1) to 1,000 mg/L (Whittier #1 zone 1), while in the West Coast Basin, hardness ranged from 8.8 mg/L (Carson #2 zone 1) to 5,600 mg/L (PM-4 Mariner zone 2). In general, the deeper aquifers characterized as having older native groundwater in the southern portion of the Central Basin and locally in the West Coast Basin show low total hardness. Most other zones in both basins have moderate to high hardness.

Figure 4.10 presents CDPH water quality data for total hardness in production wells in the CWCB during WYs 2004-2007. Groundwater from production wells in the West Coast Basin have moderate hardness. Production wells in the southern and western portions of the Central Basin show groundwater with low to moderate hardness. In the northern portion of the Central Basin, production wells show groundwater with generally moderate to high hardness.

4.7 SULFATE

Sulfate is generally not a water quality concern in the CWCB. In excess amounts, it can act as a laxative. CDPH has established a Secondary MCL upper level for sulfate at 500 mg/L. Sulfate is, however a very useful water quality constituent in the CWCB for use in tracking flow and observing travel times of artificial recharge water. Colorado River water and recycled water used for recharge in CWCB have characteristically high sulfate concentrations while native groundwater and State Water Project water have relatively low sulfate concentrations.

Figure 4.11 presents water quality data for sulfate in WRD nested monitoring wells in the CWCB during WY 2006-2007. In the Central Basin sulfate ranged from below the detection limit (numerous wells) to 1,000 mg/L (Whittier #1 zone 1), while in the West Coast Basin sulfate ranged from below the detection limit (numerous wells) to 780 mg/L (PM-4 Mariner zone 2). In general the data indicate that the lowest sulfate concentrations are found in most of the deeper zones of the West Coast Basin and southern portion of the Central Basin. Again, these are areas characterized in previous sections as having characteristics representative of older native groundwater. The uppermost one or two zones in many of these wells typically show elevated sulfate concentrations, likely due to local surface recharge. In the northeast portion of the Central Basin, higher sulfate concentrations are observed in most zones primarily due to the relatively high sulfate in imported Colorado River water. In the Central Basin a Silverado zone in Whittier #1, in an area of generally poor water quality, has sulfate over the MCL as does Whittier #2 zone 4 which is above the Silverado. In the West Coast Basin, PM-4 Mariner, which is impacted by sea water intrusion, has sulfate over the MCL in the Silverado aquifer and Hawthorne #1 has sulfate over the MCL in the shallowest zone, above the Silverado.

Figure 4.12 presents CDPH water quality data for sulfate in production wells in the CWCB during WYs 2004-2007. The production well data indicate patterns of sulfate concentrations similar to those observed in the deeper zones of WRD nested monitoring wells. Sulfate concentrations are generally low in the central and eastern areas of the

West Coast Basin and southern portion of the Central Basin, and somewhat higher along the western margin of the West Coast Basin and in the northern portion of the Central Basin.

4.8 CHLORIDE

Chloride in reasonable concentrations is not harmful to human health. Recharge sources contain low to moderate concentrations of chloride which are well below the Secondary MCL upper level for chloride of 500 mg/L. Water containing chloride concentrations above this level begins to taste salty. Chloride is the characteristic constituent used to identify seawater intrusion. When the ratio of chloride to other anions such as sulfate and bicarbonate becomes high, there is a strong indication of seawater intrusion or possible industrial brine impact to groundwater.

Figure 4.13 presents water quality data for chloride in WRD nested monitoring wells in the CWCB during WY 2006-2007. In the Central Basin, chloride concentrations ranged from 5 mg/L (numerous wells) to 660 mg/L (Whittier Narrows #1 zone 1). The Silverado aquifer zones of the Central Basin nested monitoring wells contain low to very low chloride concentrations, only one reaches 250 mg/L at Whittier #2 zone 4. In the West Coast Basin, chloride ranged from 14 (Gardena #2 zone 1) to 7,000 mg/L (PM-4 Mariner zone 2). Chloride concentrations exceeded the secondary upper MCL limit in the Silverado aquifer zones in five of the fifteen West Coast Basin nested wells, primarily in areas where seawater intrusion could be the source (Long Beach #8, Long Beach #3, Wilmington #1, Wilmington #2, and PM-4 Mariner) or from sources yet to be identified. Numerous wells in the West Coast Basin show chloride impacts above and below the Silverado.

Figure 4.14 presents CDPH water quality data for chloride in production wells in the CWCB during WYs 2004-2007. Chloride was not detected above the secondary upper MCL level in any of the Central Basin production wells. In the southern portion of the Central Basin, chloride concentrations in production wells were generally below 50 mg/L. In the northeastern portion of the Central Basin, concentrations ranged from

50 to 100 mg/L. In the West Coast Basin, available CDPH data indicate that one production well on the west side of the basin had a chloride concentration above the MCL. Several other production wells two to four miles inland from the coast show somewhat elevated chloride concentrations. Production wells further inland in the West Coast Basin have very low chloride concentrations.

4.9 TRICHLOROETHYLENE (TCE)

TCE is a solvent used in metal degreasing, textile processing, and dry cleaning. Because of its potential health effects, it has been classified as a probable human carcinogen. The Primary MCL for TCE in drinking water is 5 µg/L. Its presence in groundwater likely originated from improper disposal practices. If present in water, it can be removed easily by common treatment processes including packed tower aeration or granular activated carbon.

TCE (**Figure 4.15**) was detected in eight WRD nested monitoring well locations in the Central Basin and in three nested well locations in the West Coast Basin. In the Central Basin, TCE concentrations, ranged from below the detection limit (numerous wells) to 47 µg/L (Los Angeles #1 zone 5). Only one nested well location, Inglewood #2, contained a detectable TCE concentration in the Silverado Aquifer, but that concentration was below the MCL. Six other locations (Los Angeles #1 zones 4 and 5, Huntington Park #1 zones 3 and 4, South Gate #1 zone 4, Commerce #1 zone 5, Whittier #2 zone 5, and Downey #1 zones 5 and 6) had detections of TCE in zones above the Silverado Aquifer. The detections in Los Angeles #1 zones 4 and 5 were above the MCL. At Whittier Narrows #1, TCE was detected in zones 3 and 4, both below the Silverado aquifer.

In the West Coast Basin, TCE concentrations ranged from below the detection limit (numerous wells) to 21 µg/L (Hawthorne #1 zone 6). In the shallowest zone at PM-3 Madrid and the shallowest and deepest zones at Inglewood #1, TCE was detected below the MCL. In the shallowest zone of Hawthorne #1, TCE was detected above the MCL.

Figure 4.16 presents CDPH water quality data for TCE in production wells across the CWCB during WYs 2004-2007. Nearly 300 wells were tested for TCE. The data show that over the past three years TCE has been detected in 61 production wells in the Central Basin. Eight detections were above the MCL. Wells impacted by TCE are located in the northern portion of the Central Basin, within or near the Montebello and Los Angeles Forebay areas. In the West Coast Basin TCE was not detected in any production wells.

4.10 TETRACHLOROETHYLENE (PCE)

PCE (also known as tetrachloroethylene, perc, perclene, and perchlor) is a solvent used heavily in the dry cleaning industry, as well as in metal degreasing and textile processing. Like TCE, PCE is a probable human carcinogen. The Primary MCL for PCE in drinking water is 5 µg/L. Through improper disposal practices, PCE has contaminated many groundwater basins. PCE is also easily removed using packed tower aeration or granular activated carbon treatment.

During WY 2006-2007, PCE (**Figure 4.17**) was detected at eight nested well locations in the Central Basin. In the Central Basin, PCE ranged from below the detection limit (numerous wells) to 6.2 µg/L (Pico #2 zone 3). Generally, PCE detected in nested wells occurred within or near the vicinity of the Montebello and Los Angeles Forebays. At South Gate #1, PCE was detected above the MCL above the Silverado Aquifer. At Downey #1 and South Gate #1, PCE was detected below the MCL in the Silverado Aquifer. Whittier Narrows #1 shows PCE detected below the MCL in two zones below the Silverado Aquifer. At Huntington Park #1, PCE was detected below the MCL in zones 3 and 4, above the Silverado Aquifer. At Los Angeles #1, PCE was detected below the MCL in the two shallowest zones, both above the Silverado aquifer. At Norwalk #2, PCE was detected below the MCL above the Silverado aquifer. At Pico #2, PCE was detected in 3 zones below the Silverado aquifer; above the MCL in zone 3 and below the MCL in zones 1 and 2. In the West Coast Basin, PCE was not detected in any of the nested monitoring wells.

Figure 4.18 presents CDPH water quality data for PCE in production wells across the CWCB during WYs 2004-2007. In the Central Basin, PCE was detected in 60 production wells. Ten of the 60 wells exceeded the MCL for PCE. Production wells with detectable PCE are primarily located within the vicinity of the Los Angeles and Montebello Forebays and extend out into the west-central portion of the Central Basin. PCE was not detected in any production wells tested in the West Coast Basin.

4.11 SPECIAL INTEREST CONSTITUENTS

Several additional water quality constituents have been monitored and studied by WRD to address emerging water quality issues related to hazardous waste contamination, recycled water use in the CWCB, and proposed revisions to water quality regulations. Current special interest constituents include arsenic, chromium, total organic carbon (TOC), apparent color, and fuel oxygenates. Studies have included focused sampling of WRD nested monitoring wells and evaluation of CDPH Title 22 Program data for the special interest constituents. The following subsections present the data collected for each of these constituents.

4.11.1 Arsenic

The Safe Drinking Water Act, as amended in 1996, required the United States Environmental Protection Agency (EPA) to revise the existing drinking water standard for arsenic, which they have done. The Federal MCL for arsenic is 10 µg/L, effective January 2006. The CDPH is required to establish a standard equal to or more stringent than the EPA standard. In establishing the new statewide standard, the CDPH will consider not only possible adverse health effects from exposure to this constituent but also, as required by statute, technical, and economic feasibility. Studies have shown that treatment to remove arsenic to acceptable levels is technically feasible. However, the arsenic then becomes a potential hazardous waste. It is uncertain if arsenic residuals can be properly disposed of at acceptable costs.

Health and Safety code Section 116361 required the CDPH to adopt a new MCL for arsenic by June 30, 2004 and required the Office of Environmental Health Hazard

Assessment (OEHHA) to establish a new Public Health Goal (PHG) by December 31, 2002. Also, new language concerning the health effects of ingesting water with arsenic is required in Consumer Confidence Reports as of July 1, 2003. OEHHA announced the final PHG of 0.004 µg /L in April 2004. CDPH is proceeding with the regulatory process to establish a State MCL at a level as close as is technically and economically feasible to the PHG, and at the same or lower level than the federal MCL.

Arsenic is an element that occurs naturally in the earth's crust. Accordingly, there are natural sources of exposure. Natural sources of arsenic in include weathering and erosion of rocks, deposition of arsenic in water bodies, and uptake of the metal by animals and plants. Consumption of food and water are the major sources of arsenic exposure for the majority of U.S. citizens. Over ninety percent of commercial arsenic is used as a wood preservative in the form of chromate copper arsenate to prevent dry rot, fungi, molds, termites, and other pests. People may also be exposed from industrial applications, such as semiconductor manufacturing, petroleum refining, animal feed additives and herbicides. Arsenic is classified as a known human carcinogen by the EPA, and also causes other health effects such as high blood pressure and diabetes.

Figure 4.19 presents arsenic water quality data for WRD nested monitoring wells during WY 2006-2007. In the Central Basin arsenic concentrations ranged from non-detectable (numerous wells) to 42 µg/L in the shallowest zone at Cerritos #1 zone 6. Arsenic concentrations greater than the revised Federal MCL in the Central Basin were found at 7 out of 25 nested wells. Arsenic concentrations exceeding the revised MCL in the Silverado aquifer zones were found only at Cerritos #1 and Compton #2. Overall, the distribution of arsenic appears to be similar to the distribution of iron and manganese in the Central Basin with somewhat lower concentrations near the forebays and higher concentrations away from the forebays in the pressure areas.

In the West Coast Basin, arsenic was not detected above the new MCL in the Silverado Aquifer. The deepest zone in Gardena #1, below the Silverado Aquifer, had an arsenic concentration of 68 µg/L, exceeding the MCL.

Figure 4.20 presents CDPH water quality data for arsenic in production wells across the CWCB during WYs 2004-2007. Ten production wells in the Central Basin contained arsenic concentrations above the revised MCL. Many other production wells in the Central Basin contained arsenic at concentrations between 5 and 10 µg/L. Arsenic did not exceed the revised MCL in any West Coast Basin production wells.

4.11.2 Chromium

Chromium is a metal used in the manufacture of stainless steel, metal plating operations, and other applications. Chromium has the potential to contaminate groundwater from spills and leaking tanks. It comes in two basic forms: chromium 3 (trivalent) and chromium 6 (hexavalent) ions. Chromium 3 is a basic nutrient that is quite commonly ingested by adults in doses of 50 to 200 µg/day. Chromium 6 is an oxidized form of chromium 3 that is a known carcinogen when inhaled and is a concern for occupational exposures in chromium plating and other related industries. It is unclear if ingestion of chromium 6 is harmful. The reduction of chromium 6 to chromium 3 that occurs from gastric juices during digestion is a key factor in determining the whether ingested chromium 6 is carcinogenic at a specific concentration.

Currently the MCL for total (all forms of) chromium is 50 µg/L. In February 1999, OEHHA established a Public Health Goal for total chromium at 2.5 µg/L, based on a health protective level for chromium 6 at 0.2 µg/L and the assumption that 7 percent of total chromium in drinking water is chromium 6. In November 2001, OEHHA announced that it rescinded this PHG. A scientific panel convened by the University of California, known as the Chromate Toxicity Review Committee, reviewed the study that OEHHA originally used as a basis for their PHG and concluded that the data were flawed and should not be used for health risk assessment. At the request of both CDPH and OEHHA, the National Toxological Program of the National Institute of Environmental Health Sciences is performing a long-term health effects study on rodents to evaluate the potential carcinogenicity of ingested chromium 6. CDPH has added chromium 6 to its list of Unregulated Chemicals Requiring Monitoring (UCRM) in production wells.

Health and Safety Code Section 116365.5 required CDPH to adopt a chromium 6 MCL by January 1, 2004. However, OEHHA has not yet issued a new draft chromium 6 PHG, and therefore, CDPH has not proceeded with the regulatory process to establish an MCL.

Figure 4.21 presents total chromium water quality data for WRD nested monitoring wells. In the Central Basin, only the two uppermost zones in the Los Angeles #1 nested well exceeded the MCL of 50 µg/L for total chromium. Trace levels of total chromium were detected in one or more zones of all but four Central Basin nested wells. Total chromium was not detected above the MCL in the West Coast Basin. Trace levels of total chromium were detected in 11 out of 15 nested wells in the West Coast Basin.

Figure 4.22 presents CDPH water quality data for total chromium in production wells across the CWCB during WYs 2004-2007. No production wells in the Central Basin exceeded the MCL for total chromium. In the majority of production wells sampled in the Central Basin, total chromium was not detected. A total of 38 production wells in the Central Basin contained detectable total chromium below the MCL. Total chromium was not detected in any of the production wells tested in the West Coast Basin.

4.11.3 Total Organic Carbon

Total organic carbon (TOC) is the broadest measure of the concentration of organic molecules in water and is of interest because it gives an indication of the potential formation of disinfectant byproducts, some of which are harmful. TOC can be naturally occurring, result from domestic and commercial activities, or can be a product of wastewater treatment processes. While there is no MCL established for TOC, regulators are generally concerned with TOC of wastewater origin as a measurable component of recycled water. Typically, wastewater that has been subjected to effective secondary treatment contains 5 to 8 mg/L of TOC. Advanced treatment can effectively lower the TOC concentration to less than 1 mg/L. Likewise, percolating water through the soil has also been proven to be an effective method in reducing TOC in reclaimed water. However, TOC in groundwater may also occur naturally and have no relation to

wastewater. Studies indicate that the TOC measured in groundwater samples in both nested monitoring wells and production wells in the CWCB is naturally occurring in the aquifer systems and was derived from organic material and decaying vegetation either deposited with the aquifer sediments as the basins were filling or originally contained in imported water (AWWA, 2001).

Figure 4.23 presents TOC water quality data for WRD nested monitoring wells during WY 2006-2007. In the Central Basin, TOC was detected in multiple zones of all 25 nested monitoring wells. Where TOC is present, concentrations are typically below 1 mg/L and less frequently between 1 and 5 mg/L. The lower concentrations occur in the shallow and middle zones of the nested wells; higher concentrations of TOC are generally found in the deeper zones. Six wells in the Central Basin have zones with TOC greater than 5 mg/L; including Long Beach #6 zones 1, 2, and 4; the deepest zone at Long Beach #2; the deepest three zones at Inglewood #2; the deepest zone at Compton #2; the deepest zone at Whittier Narrows #1; and the deepest two zones sampled at Montebello #1. The deeper wells with TOC greater than 5 mg/L are likely to contain naturally occurring organic carbon, and not wastewater related organic carbon. In the West Coast Basin, TOC greater than 1 mg/L is present in one or more zones at all 15 nested monitoring wells tested, and at concentrations greater than 5 mg/L in one or more zones at seven of the 15 West Coast Basin nested monitoring wells tested.

Figure 4.24 presents limited CDPH water quality data for TOC in production wells across the CWCB during WYs 2004-2007. During the three-year period only 41 production wells were tested for TOC. Seven of the 41 wells tested below the detection limit for TOC. Most of the wells contained TOC at concentrations ranging from less than 1 mg/L to 5 mg/L and were not limited to any specific area.

4.11.4 Apparent Color

Apparent color in groundwater (colored groundwater) is not toxic or harmful; an MCL of 15 apparent color units (ACUs) has been established as an aesthetic standard. Colored groundwater results from colloidal organic particles suspended in the water that display

colors ranging from pale yellow to a dark tea brown. There is an observed relationship between apparent color and TOC, especially in the higher concentration range. Colored groundwater can be treated and served, however treatment is relatively expensive.

Figure 4.25 presents apparent color water quality data for WRD nested monitoring wells in the CWCB during WY 2006-2007. Apparent color is present above the MCL in the deepest zones of 21 nested monitoring wells. Several nested wells have apparent color above the MCL in intermediate zones. Apparent color does not exceed the MCL in the uppermost zone in any nested monitoring wells tested. This relationship between apparent color and depth, along with the relationship between color and TOC, is probably due to an increase in the content of natural organic matter in the deeper sediments of the basins.

Figure 4.26 presents CDPH water quality data for apparent color in production wells across the CWCB during WYs 2004-2007. These data indicate that colored groundwater is not widespread, but only a localized problem in the basins. Most production wells tested below the MCL. Locally in the Long Beach, Inglewood, Commerce/Bell Gardens, and Los Angeles areas, several wells did test above the MCL for apparent color; some water purveyors in those areas have treatment systems operating to remove color from the groundwater.

4.11.5 Fuel Oxygenates

Fuel oxygenates are a group of compounds including several ethers and alcohols which have been added to gasoline to increase octane rating and improve combustion, thereby reducing formation of harmful automobile emissions. The primary compounds include methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), tert-amyl methyl ether (TAME), ethyl tert-butyl ether (ETBE), tert-butyl alcohol (TBA), and ethanol. Of these compounds MTBE is by far the most significant as a groundwater contaminant because of possible health effects, widespread use, and presence in groundwater. The other ethers including DIPE, TAME, and ETBE have not generated the same level of concern from

regulators because of limited use, lack of established health effects, and less common occurrence in groundwater.

TBA is an alcohol and has been added to gasoline in the past but is not currently produced for this purpose. It has been detected in groundwater. While no MCL is set for TBA, a drinking water notification level of 12 µg/L has been issued by CDPH. Like MTBE, ethanol is widely used as a fuel oxygenate. However ethanol is not thought to persist in groundwater and is difficult to analyze. No reliable laboratory method has been developed to quantify ethanol concentrations in water.

WRD has routinely sampled and analyzed for most of the fuel oxygenates discussed above including MTBE, DIPE, ETBE, and TAME. Due to relatively high additional cost, TBA is not routinely analyzed. In the second half of WY 2006-2007, groundwater samples from WRD nested monitoring wells were tested for TBA to complete this special study focus of fuel oxygenates for the CWCB. **Figures 4.27 through 4.32** present water quality results for MTBE, TBA, and DIPE in the CWB for WY 2006-2007. No ETBE or TAME were detected in nested monitoring wells or production wells in the CWCB during WY 2006-2007 and no figures have been prepared for these two fuel oxygenate constituents.

MTBE

MTBE is a synthetic chemical added to gasoline to improve air quality as required by the Federal Clean Air Act. Limited quantities have been used in gasoline in California since the 1970s. In 1992, oil companies began using it extensively in California to meet reformulated gas requirements of the State Air Resources Board. Its use enables gasoline to burn more completely. However, MTBE has been detected in groundwater and surface water throughout California from sources including leaking underground storage tanks, pipelines, and spills; and from emissions of boat engines into lakes and reservoirs. MTBE is a potential human carcinogen. Effective May 17, 2000, a primary MCL of 13 µg/L was established by CDPH. A secondary standard of 5 µg/L was established in

response to taste and odor concerns. Effective Janaury 1, 2004, the use of MTBE was banned.

Figure 4.27 presents MTBE water quality data for WRD nested monitoring wells during WY 2006-2007. MTBE was not detected in any of the WRD nested monitoring wells. MTBE will continue to be monitored in the future in WRD nested monitoring wells.

Figure 4.28 presents CDPH water quality data for MTBE in production wells across the CWCB during WYs 2004-2007. In the Central Basin, MTBE was detected in one production well located in the Los Angeles Forebay. The well has been out of production since the MTBE was detected. MTBE was not detected in any West Coast Basin production wells during the reporting period.

TBA

Figure 4.29 presents TBA water quality data for WRD nested monitoring wells during WY 2006-2007. TBA was detected in 5 of the WRD nested monitoring wells. In the West Coast Basin, TBA was detected above the NL in all zones at Wilmington #1. In the shallowest two zones of Long Beach #3, the shallowest zone of Hawthorne #1, and the deep zone at Chandler #3, TBA was detected below the NL. In the Central Basin, Long Beach #2 zone 4 had TBA detected above the NL and Norwalk #1 zone 5 had TBA detected below the NL. WRD is working with EPA, CDPH, and the RWQCB-LA to characterize the extent and sources of the TBA and to determine whether the presence of this unregulated chemical poses a threat to groundwater in the CWCB.

Figure 4.30 presents CDPH water quality data for TBA in production wells across the CWCB during WYs 2004-2007. In the Central Basin, TBA was detected in 23 production wells, all below the NL. There did not appear to be any distinct pattern to the occurrence of TBA in the Central Basin production wells. In the West Coast Basin 13 production wells were tested, and TBA was not detected in any West Coast Basin production wells.

DIPE

Figure 4.31 presents DIPE water quality data in WRD nested monitoring wells across the CWCB. DIPE was detected 4 zones at Wilmington #1, presumably related to the TBA detected in the same zones. **Figure 4.32** presents CDPH water quality data for DIPE in production wells across the CWCB during WYs 2004-2007. DIPE was detected in two production wells in the Central Basin. DIPE was not detected in any West Coast Basin wells.

SECTION 5
SUMMARY OF FINDINGS

This Regional Groundwater Monitoring Report was prepared by WRD to provide a comprehensive review of groundwater conditions in the CWCB during WY 2006-2007. A summary of findings is presented below.

- Artificial replenishment activities combined with natural replenishment and controlled pumping have ensured a sustainable, reliable supply of groundwater in the CWCB. Artificial replenishment water sources used by WRD include imported water from the MWD, recycled water from the CSDLAC, and recycled water with advanced treatment from WBMWD, the City of Los Angeles, and WRD's Leo J. Vander Lans water treatment facility.
- At the Montebello Forebay, 40,214 AF of imported water was conserved for replenishment during WY 2006-2007. A total of 45,039 AF of recycled water was conserved for spreading in the Montebello Forebay. A total of 11,994 AF of imported water was injected to the seawater barriers. A total of 13,077 AF of recycled water was purchased for injection into the seawater barriers.
- Groundwater production in the CWCB was 235,770 AF for Water Year 2006-2007. This amount is less than the adjudicated amount of 281,835 AF.
- Groundwater levels (heads) were monitored continuously in the CWCB during the Water Year. The WRD nested monitoring wells show clear, significant differences in groundwater elevations between the various aquifers. The water level differences in the WRD nested monitoring wells reflect both hydrogeologic and pumping conditions in the CWCB. Vertical head differences between 1 and 65 feet occur between zones above and within the producing zones. The greatest head differences between aquifers tend to occur in the Long Beach area of the Central Basin and Gardena and Carson areas of the West Coast Basin, while the smallest differences occur in the Montebello Forebay recharge area, and the Torrance area which has thick, merged aquifers.

- Basinwide hydrographs and groundwater elevations measured in nested monitoring wells and key production wells indicate significant decreases in water levels over most of the Central Basin, up to 25 feet in La Mirada Area. Water levels were generally stable to slightly decreasing in the West Coast Basin during WY 2006-2007. On average, water levels decreased in the unconfined Montebello Forebay area about 10 to 15 feet and in the Los Angeles Forebay from 5 to 10 feet during WY 2006-2007. Elsewhere in the confined portions of the deeper aquifers of the basin water levels generally decreased 1 to 20 feet during WY 2006-2007. Overall, the change in groundwater storage for the CWCB was calculated at a loss of approximately 59,000 AF.
- The water quality associated with key constituents in untreated imported water used at the Montebello Forebay Spreading Grounds remains good. Average TDS, hardness, iron and manganese concentrations in imported water (either 100% State Project Water or blended State Project/Colorado River Water) used for recharge, meet their respective MCLs. Meanwhile, TCE and PCE were not detected in either water source.
- The water quality associated with key constituents in recycled water used at the Montebello Forebay Spreading Grounds and barrier injection wells also remains excellent and is monitored regularly to ensure its safe use.
- Stormwater samples are occasionally collected and analyzed for water quality parameters. The most recent available data show that average stormwater TDS concentrations and hardness are lower than most other sources of replenishment water and other constituent concentrations make stormwater a good replenishment source.
- Based on the data obtained from the WRD nested monitoring wells during WY 2006-2007, the water quality associated with key constituents in groundwater differs both vertically between aquifers and horizontally across the CWCB.
- TDS concentrations for WRD wells located in the Central Basin are relatively low, while TDS concentrations for WRD wells located in the West Coast Basin are elevated in portions of the basin, primarily the Torrance and Dominguez Gap areas. The elevated TDS concentrations may be caused by seawater intrusion or connate brines, or possibly oil field brines. During this reporting period, concentrations in the

Central Basin ranged from 174 mg/L to 2,690 mg/L and averaged 510 mg/L. In the West Coast Basin TDS concentrations in nested monitoring wells ranged from 190 mg/L to 13,900 mg/L, and averaged 1,016 mg/L.

- Iron concentrations are potentially problematic in portions of the CWCB. During the current reporting period, concentrations in the Central Basin ranged from non-detectable to 9.1 mg/L, and in the West Coast Basin from non-detectable to 1.1 mg/L. The secondary MCL for iron is 0.3 mg/L. Sources of the localized high iron concentrations have not yet been identified but are possibly naturally occurring.
- Similar to the iron concentrations, manganese concentrations exceed the MCL (50 µg/L) in a large number of nested monitoring wells and production wells across the CWCB. During the current reporting period, nested well concentrations in the Central Basin ranged from non-detectable to 630 µg/L, and in the West Coast Basin from non-detectable to 1,200 µg/L. Similar to iron, sources of the localized high manganese concentrations have not yet been identified but are possibly naturally occurring.
- Nitrate (as nitrogen) concentrations in WRD nested monitoring wells in the Central Basin ranged from non-detectable to 14 mg/L, and in the West Coast Basin from non-detectable to 25 mg/L. Concentrations approaching or exceeding the 10 mg/L MCL tend to be limited to the uppermost zone at a particular nested well and are likely due to localized infiltration and leaching. Concentrations above the MCL were not observed in the Silverado Aquifer. CDPH data indicates that none of the CWCB production wells tested for nitrate above the MCL during WYs 2004-2007.
- TCE was not detected in the Silverado Aquifer in the WRD wells sampled, with the exception of Inglewood #2. During the current reporting period, concentrations in nested monitoring wells in the Central Basin ranged from non-detectable to 47 µg/L, and in the West Coast Basin from non-detectable to 21 µg/L. CDPH data indicate that TCE was detected in 61 production wells in the Central Basin during WYs 2004-2007, 8 out of the 61 detections exceed the MCL for TCE. In the West Coast Basin, TCE was not detected above the MCL in any production wells.
- PCE was detected in eight WRD nested monitoring wells in the Central Basin and none in the West Coast Basin. PCE was detected in the Silverado Aquifer in two of

the WRD wells sampled. During the current reporting period, concentrations in the Central Basin ranged from non-detectable to 6.2 µg/L. CDPH data indicate that PCE was detected in 60 production wells in the Central Basin during WYs 2004-2007. A total of 10 out of the 60 detections exceeded the MCL for PCE. PCE was not detected in any of the West Coast Basin production wells.

- EPA has adopted a new arsenic standard for drinking water, decreasing the former MCL of 50 µg/L to 10 µg/L. Enforcement of the MCL began in 2006. WRD nested monitoring wells indicate that arsenic concentrations in the south-central and especially near the eastern side of the Central Basin can exceed the new State MCL. Ten production wells, all in this portion of the Central Basin, have arsenic concentrations exceeding the pending MCL of 10 µg/L. Arsenic was not detected above the MCL in any of the West Coast Basin production wells.
- Chromium was detected above the MCL in groundwater samples from one WRD nested monitoring well. However, no production wells in the CWCB exceeded the MCL. Additional monitoring wells and production wells contained detectable chromium concentrations below the MCL.
- Total organic carbon and apparent color are being monitored and studied in relation to use of recycled water for artificial recharge and future development of potential groundwater production from deeper portions of the CWCB than have typically been utilized in the past. Lower concentrations were found in shallow and moderate zones, and higher concentrations (>5 mg/L) were found in deeper zones.
- Fuel oxygenates, a growing concern among regulators in recent years, are not currently a widespread problem in the CWCB. MTBE is generally of greatest concern due to widespread use, adverse health effects, and known impact to groundwater, however MTBE was not detected in any WRD nested monitoring wells in 2006-2007 and in only one production well, in the Central Basin, in past three years.
- TBA has been detected in five WRD nested monitoring wells in the CWCB. TBA was also detected in 23 production wells, all in the Central Basin. While a CDPH notification level of 12 µg /L has been set for TBA, no enforceable MCL has been established.

- DIPE was detected in one WRD nested monitoring well (along with TBA) in Wilmington and separately in two production wells in the Central Basin. No enforceable MCL has been established for DIPE. TAME and ETBE were not detected in WRD nested monitoring wells or production wells.
- As shown by the data presented herein, groundwater in the CWCB is of generally good quality and is suitable for use by the pumpers in the District, the stakeholders, and the public. Localized areas of marginal to poor water quality are either currently receiving or may require treatment prior to being used as a potable source.

SECTION 6
FUTURE ACTIVITIES

WRD will continue to update and augment its Regional Groundwater Monitoring Program to best serve the needs of the District, the pumpers and the public. Some of the activities planned or which utilize data generated from this program for the upcoming WY 2007-2008 are listed below.

- WRD will continue to maximize recycled water use at the Montebello Forebay Spreading Grounds without exceeding regulatory limits, because recycled water is a high quality reliable, and relatively low-cost replenishment water source. Due to the anticipated unreliability of imported water deliveries from MWD, WRD is developing the Water Independence Network (WIN) initiative which includes increasing the safe use of recycled water for groundwater recharge and reduce the reliance on imported water supplies.
- WRD will continue to maximize recycled water use at the West Coast Barrier, and will promote maximum permitted recycled water injection at the Dominguez Gap and Alamitos Gap Barriers. Extensive monitoring of these recycled water injection projects will be performed to comply with applicable permit conditions and to track subsurface movement of the recycled water.
- WRD will continue to monitor the quality of replenishment water sources to ensure the CWCB are being recharged with high-quality water.
- Total injection quantities at the Dominguez Gap Barrier has increased in the past several years as additional barrier wells came on-line and recycled water was blended to increase the effectiveness to prevent sea water intrusion. Injection quantities at the West Coast Barrier have increased over the past two years overcoming operational issues along with utilization of nearly 75% recycled water. The Alamitos Gap Barrier and the Dominguez Gap Barrier are expected to fully utilize the permitted 50% recycled water over the coming year. WRD will work with the pumpers over the next year to identify solutions to reduce the injection water demands and/or high costs.

Basin management alternatives including Aquifer Storage and Recovery (ASR) projects, pipeline construction, and other conjunctive use projects and programs will be explored to address future groundwater resource management challenges.

- WRD continues refining the regional understanding of groundwater occurrence, movement, and quality. Water levels will be recorded using automatic dataloggers to monitor groundwater elevation differences throughout the year.
- WRD is currently expanding its network of nested monitoring wells to get a better understanding of groundwater levels and groundwater quality. Four new locations, one in the Los Angeles Forebay, one between the Los Angeles and Montebello Forebays, and two in the saline plume of the West Coast Basin, will be completed in 2007-2008. Each year, WRD Staff evaluate the need to fill data gaps in the water level data, water quality data, and hydrogeologic conceptual model with additional geologic data provided from drilling, construction, and monitoring of nested wells.
- WRD will continue to sample groundwater from nested monitoring wells, and analyze the samples for general water quality constituents. In addition, WRD will continue to focus on constituents of interest to WRD, the pumpers, and other stakeholders such as TCE, PCE, arsenic, fuel oxygenates, TOC, and apparent color. New chemicals of concern which have not been comprehensively monitored include pesticides, n-nitrosodimethylamine (NDMA), 1,4-Dioxane, pharmaceuticals and others. Constituents studied in the past including hexavalent chromium and perchlorate may also warrant revisiting in the future.
- WRD staff will be working on refining the hydrogeologic conceptual model of the CWCB using data from the RGWMP and other data to improve the framework for understanding the dynamics of the groundwater system and use as a planning tool.
- WRD will continue efforts under its Groundwater Contamination Prevention Program in order to minimize or eliminate threats to groundwater supplies. The Groundwater Contamination Prevention Program includes several ongoing efforts. Central and West Coast Basin Groundwater Contamination Forum with key stakeholders including EPA, DTSC, LARWQCB, CDPH, USGS, and various cities. Stakeholders meet regularly (meetings are held 3 – 4 times per year at WRD) and share data on contaminated groundwater sites within the District. WRD has acted as the meeting

coordinator and data repository/distributor, helping stakeholders to characterize contamination and develop optimal methods for addressing contamination. WRD developed a list of high-priority contaminated groundwater sites within the District. Currently, the list includes approximately 36 sites across the CWCB.

- In 2003, WRD developed a scope of work with the Los Angeles County Department of Health Services (LACCDPH) to clarify the status of 217 potentially abandoned (a.k.a., "unknown status") wells located within District boundaries, as identified through researching WRD's groundwater production database. WRD was able to reduce the number of "unknown status" wells from 217 to 20, and most of the remaining 20 are suspected to have been paved over during development of industrial and residential neighborhoods.
- WRD staff will continue to be proactively involved in the oversight of the most significant contaminated sites that threaten CWCB groundwater resources.
- WRD will continue to fund the Well-head treatment program to address VOC impacted groundwater, especially by PCE and TCE in the CWCB.
- WRD will continue to use the data generated by the Regional Groundwater Monitoring Program along with WRD's advanced GIS capabilities to address current and upcoming issues related to water quality and groundwater replenishment in the Central and West Coast Basins.

SECTION 7
REFERENCES

American Water Works Association Research Foundation (AWWA), *Soil Aquifer treatment for Sustainable Water Reuse*, 2001.

Bookman-Edmonston Engineering, Inc., *Report on Program of Water Quality Monitoring*, January 1973.

California Department of Water Resources (DWR), *Bulletin No. 104: Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A – Ground Water Geology,* 1961.

County Sanitation Districts of Los Angeles County (CSDLAC), *Montebello Forebay Groundwater Recharge Engineering Report*, November 1997.

County Sanitation Districts of Los Angeles County (CSDLAC), *Montebello Forebay Groundwater Recharge-WQCB order No. 91-100, Monitoring and Reporting Program No. 5728, Annual Monitoring Reports*, 2006.

Driscoll, Fletcher G, Ph.D., *Groundwater and Wells*, Johnson Filtration Systems, Inc. 1989.

Fetter, C.W., *Applied Hydrogeology, Third Edition*, Prentice-Hall, 1994.

Hem, John D., *Study and Interpretation of the Chemical Characteristics of Natural Water, Third Edition*, U.S. Geological Survey Water-Supply Paper 2254, 1992.

Mendenhall, W.D., 1905, *Development of underground waters in the central coastal plain region of southern California*: U.S. Geological Survey Water Supply Paper 137, 140p.

Metropolitan Water District of Southern California (MWD), *Annual Report to Member Agencies*, 2006.

Montgomery Watson, *Report for West Coast Basin Desalinization Feasibility/Siting Study*, February 1997.

Montgomery Watson, *West Coast Basin Plume Mitigation Study*, September 1992.

National Research Council, *Issues in Potable Reuse*, National Academy Press, 1998.

Reichard, Eric G.; Land, Michael; Crawford, Steven M.; Johnson, Tyler; Everett, Rhett; Kulshan, Trayle V.; Ponti, Daniel J.; Halford, Kieth J.;Johnson, Theodore A.; Paybins, Katherine S.; and Nishikawa, Tracey: *Geohydrology, Geochemistry, and Ground-Water Simulation-Optimization of the Central and West Coast Basins, Los Angeles County, California*, United States Geological Survey Water Resources Investigations Report 03-4065; Sacramento, California, 2003.

United States Environmental Protection Agency (EPA), *Whittier Narrows Operable Unit Feasibility Study Addendum*, October 1998.

Water Replenishment District of Southern California (WRD), *Engineering Survey and Report*, 2007.

West Basin Municipal Water District, West Basin Water Reclamation Treatment Facility, Annual Report, 2006.

TABLES

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Carson #1	1	100030	1010	990	1010	Sunnyside
	2	100031	760	740	760	Silverado
	3	100032	480	460	480	Lynwood
	4	100033	270	250	270	Gage
Carson #2	1	101787	1250	1230	1250	Sunnyside
	2	101788	870	850	870	Silverado
	3	101789	620	600	620	Silverado
	4	101790	470	450	470	Lynwood
	5	101791	250	230	250	Gage
Cerritos #1	1	100870	1215	1155	1175	Sunnyside
	2	100871	1020	1000	1020	Sunnyside
	3	100872	630	610	630	Lynwood
	4	100873	290	270	290	Gage
	5	100874	200	180	200	Artesia
	6	100875	135	125	135	Artesia
Cerritos #2	1	101781	1470	1350	1370	Sunnyside
	2	101782	935	915	935	Silverado
	3	101783	760	740	760	Silverado
	4	101784	510	490	510	Jefferson
	5	101785	370	350	370	Gage
	6	101786	170	150	170	Gaspur
Chandler #3B	1	100082	363	341	363	Gage/Lynwood/Silverado
Chandler #3A	2	100083	192	165	192	Gage/Lynwood/Silverado
Commerce #1	1	100881	1390	1330	1390	Pico Formation
	2	100882	960	940	960	Sunnyside
	3	100883	780	760	780	Sunnyside
	4	100884	590	570	590	Silverado
	5	100885	345	325	345	Hollydale
	6	100886	225	205	225	Exposition/Gage
Compton #1	1	101809	1410	1370	1390	Sunnyside
	2	101810	1170	1150	1170	Sunnyside
	3	101811	820	800	820	Silverado
	4	101812	480	460	480	Hollydale
	5	101813	325	305	325	Gage
Compton #2	1	101948	1495	1475	1495	Sunnyside
	2	101949	850	830	850	Sunnyside
	3	101950	605	585	605	Silverado
	4	101951	400	380	400	Hollydale
	5	101952	315	295	315	Gage
	6	101953	170	150	170	Exposition
Downey #1	1	100010	1190	1170	1190	Sunnyside
	2	100011	960	940	960	Silverado
	3	100012	600	580	600	Silverado
	4	100013	390	370	390	Hollydale/Jefferson
	5	100014	270	250	270	Gage
	6	100015	110	90	110	Gaspur
Gardena #1	1	100020	990	970	990	Sunnyside
	2	100021	465	445	465	Silverado
	3	100022	365	345	365	Lynwood
	4	100023	140	120	140	Gage

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Gardena #2	1	101804	1335	1275	1335	Sunnyside
	2	101805	790	770	790	Silverado
	3	101806	630	610	630	Silverado
	4	101807	360	340	360	Lynwood
	5	101808	255	235	255	Gardena
Hawthorne #1	1	100887	990	910	950	Sunnyside
	2	100888	730	710	730	Silverado
	3	100889	540	520	540	Silverado
	4	100890	420	400	420	Silverado
	5	100891	260	240	260	Lynwood
	6	100892	130	110	130	Gage
Huntington Park #1	1	100005	910	890	910	Silverado
	2	100006	710	690	710	Jefferson
	3	100007	440	420	440	Gage
	4	100008	295	275	295	Exposition
	5	100009	134	114	134	Gaspur
Inglewood #1	1	100091	1400	1380	1400	Pico Formation
	2	100092	Abandoned Well			
	3	100093	450	430	450	Silverado
	4	100094	300	280	300	Lynwood
	5	100095	170	150	170	Gage
Inglewood #2	1	100824	860	800	840	Pico Formation
	2	100825	470	450	470	Sunnyside
	3	100826	350	330	350	Silverado
	4	100827	245	225	245	Lynwood
Lakewood #1	1	100024	1009	989	1009	Sunnyside
	2	100025	660	640	660	Silverado
	3	100026	470	450	470	Lynwood
	4	100027	300	280	300	Gage
	5	100028	160	140	160	Artesia
	6	100029	90	70	90	Bellflower
La Mirada #1	1	100876	1150	1130	1150	Sunnyside
	2	100877	985	965	985	Silverado
	3	100878	710	690	710	Lynwood
	4	100879	490	470	490	Jefferson
	5	100880	245	225	245	Gage
Lomita #1	1	100818	1340	1240	1260	Sunnyside
	2	100819	720	700	720	Sunnyside
	3	100820	570	550	570	Silverado
	4	100821	420	400	420	Silverado
	5	100822	240	220	240	Gage
	6	100823	120	100	120	Gage
Long Beach #1	1	100920	1470	1430	1450	Sunnyside
	2	100921	1250	1230	1250	Sunnyside
	3	100922	990	970	990	Silverado
	4	100923	619	599	619	Lynwood
	5	100924	420	400	420	Jefferson
	6	100925	175	155	175	Gage

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Long Beach #2	1	101740	1090	970	990	Sunnyside
	2	101741	740	720	740	Sunnyside
	3	101742	470	450	470	Silverado
	4	101743	300	280	300	Lynwood
	5	101744	180	160	180	Gage
	6	101745	115	95	115	Gaspur
Long Beach #3	1	101751	1390	1350	1390	Sunnyside
	2	101752	1017	997	1017	Silverado
	3	101753	690	670	690	Silverado
	4	101754	550	530	550	Silverado
	5	101755	430	410	430	Lynwood
Long Beach #4	1	101759	1380	1200	1220	Pico Formation
	2	101760	820	800	820	Sunnyside
Long Beach #6	1	101792	1530	1490	1510	Pico Formation
	2	101793	950	930	950	Sunnyside
	3	101794	760	740	760	Sunnyside
	4	101795	500	480	500	Silverado
	5	101796	400	380	400	Lynwood
	6	101797	240	220	240	Gage
Long Beach #8	1	101819	1495	1435	1455	Pico Formation
	2	101820	1040	1020	1040	Sunnyside
	3	101821	800	780	800	Silverado
	4	101822	655	635	655	Silverado
	5	101823	435	415	435	Lynwood
	6	101824	185	165	185	Gage
Los Angeles #1	1	100926	1370	1350	1370	Pico Formation
	2	100927	1100	1080	1100	Sunnyside
	3	100928	940	920	940	Silverado
	4	100929	660	640	660	Lynwood
	5	100930	370	350	370	Gage
Montebello #1	1	101770	980	900	960	Pico Formation
	2	101771	710	690	710	Sunnyside
	3	101772	520	500	520	Silverado
	4	101773	390	370	390	Lynwood
	5	101774	230	210	230	Gage
	6	101775	110	90	110	Exposition
Norwalk #1	1	101814	1420	1400	1420	Sunnyside
	2	101815	1010	990	1010	Silverado
	3	101816	740	720	740	Lynwood
	4	101817	450	430	450	Jefferson
	5	101818	240	220	240	Gage
Norwalk #2	1	101942	1480	1460	1480	Not Interpreted
	2	101943	1280	1260	1280	Not Interpreted
	3	101944	980	960	980	Not Interpreted
	4	101945	820	800	820	Not Interpreted
	5	101946	500	480	500	Not Interpreted
	6	101947	256	236	256	Not Interpreted
Pico #1	1	100001	900	860	900	Pico Formation
	2	100002	480	460	480	Silverado
	3	100003	400	380	400	Silverado
	4	100004	190	170	190	Gardena

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Pico #2	1	100085	1200	1180	1200	Sunnyside
	2	100086	850	830	850	Sunnyside
	3	100087	580	560	580	Sunnyside
	4	100088	340	320	340	Silverado
	5	100089	255	235	255	Lynwood
	6	100090	120	100	120	Gaspur
PM-1 Columbia	1	100042	600	555	595	Sunnyside
	2	100043	505	460	500	Silverado
	3	100044	285	240	280	Lynwood
	4	100045	205	160	200	Gage
PM-3 Madrid	1	100034	685	640	680	Sunnyside
	2	100035	525	480	520	Silverado
	3	100036	285	240	280	Lynwood
	4	100037	190	145	185	Gage
PM-4 Mariner	1	100038	715	670	710	Sunnyside
	2	100039	545	500	540	Silverado
	3	100040	385	340	380	Lynwood
	4	100041	245	200	240	Lynwood
Rio Hondo #1	1	100064	1150	1110	1130	Sunnyside
	2	100065	930	910	930	Sunnyside
	3	100066	730	710	730	Sunnyside
	4	100067	450	430	450	Silverado
	5	100068	300	280	300	Lynwood
	6	100069	160	140	160	Gardena
South Gate #1	1	100893	1460	1440	1460	Pico Formation
	2	100894	1340	1320	1340	Sunnyside
	3	100895	930	910	930	Silverado
	4	100896	585	565	585	Lynwood
	5	100897	250	220	240	Exposition
Westchester #1	1	101776	860	740	760	Pico Formation
	2	101777	580	560	580	Sunnyside
	3	101778	475	455	475	Silverado
	4	101779	330	310	330	Lynwood
	5	101780	235	215	235	Gage
Whittier #1	1	101735	1298	1180	1200	Sunnyside
	2	101736	940	920	940	Sunnyside
	3	101737	620	600	620	Silverado
	4	101738	470	450	470	Lynwood
	5	101739	220	200	220	Gage
Whittier #2	1	101936	1390	1370	1390	Sunnyside
	2	101937	1110	1090	1110	Sunnyside
	3	101938	675	655	675	Silverado
	4	101939	445	425	445	Silverado
	5	101940	335	315	335	Lynwood
	6	101941	170	150	170	Gardena

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Whittier Narrows #1	1	100046	769	749	769	Sunnyside
	2	100047	769	609.5	629	Sunnyside
	3	100048	769	462.5	482.5	Sunnyside
	4	100049	769	392.5	402	Silverado
	5	100050	769	334	343.5	Silverado
	6	100051	769	272.5	282.5	Lynwood
	7	100052	769	233.5	243	Jefferson
	8	100053	769	163	173	Gardena
	9	100054	769	95	104.5	Gaspur
Willowbrook #1	1	100016	905	885	905	Sunnyside
	2	100017	520	500	520	Silverado
	3	100018	380	360	380	Lynwood
	4	100019	220	200	220	Gage
Wilmington #1	1	100070	1040	915	935	Sunnyside
	2	100071	800	780	800	Sunnyside
	3	100072	570	550	570	Silverado
	4	100073	245	225	245	Lynwood
	5	100074	140	120	140	Gage
Wilmington #2	1	100075	1030	950	970	Sunnyside
	2	100076	775	755	775	Silverado
	3	100077	560	540	560	Lynwood
	4	100078	410	390	410	Lynwood
	5	100079	140	120	140	Gage

TABLE 2.1
SUMMARY OF SPREADING OPERATIONS AT MONTEBELLO FOREBAY

Water Year	Rio Hondo (includes Spreading Grounds & Whittier Narrows Reservoir)				San Gabriel (includes unlined river and Spreading Grounds)				Total Recharge			
	Imported	Recycled	Local	Total	Imported	Recycled	Local	Total	Imported	Recycled	Local	Total
1963/64	44,366	4,758	6,013	55,137	40,150	4,145	3,979	48,274	84,516	8,903	9,992	103,411
1964/65	64,344	2,501	8,616	75,461	69,995	4,867	4,481	79,343	134,339	7,368	13,097	154,804
1965/66	62,067	9,984	31,317	103,368	32,125	3,129	14,433	49,687	94,192	13,113	45,750	153,055
1966/67	46,322	14,117	37,428	97,867	20,813	2,106	22,392	45,311	67,135	16,223	59,820	143,178
1967/68	65,925	16,299	27,885	110,109	12,402	1,975	11,875	26,252	78,327	18,274	39,760	136,361
1968/69	13,018	6,105	69,055	88,178	4,895	7,772	50,106	62,773	17,913	13,877	119,161	150,951
1969/70	25,474	13,475	24,669	63,618	35,164	3,683	28,247	67,094	60,638	17,158	52,916	130,712
1970/71	41,913	11,112	24,384	77,409	21,211	8,367	21,735	51,313	63,124	19,479	46,119	128,722
1971/72	15,413	12,584	10,962	38,959	14,077	4,959	6,218	25,254	29,490	17,543	17,180	64,213
1972/73	47,712	12,238	33,061	93,011	32,823	9,767	12,016	54,606	80,535	22,005	45,077	147,617
1973/74	40,593	9,574	18,421	68,588	34,271	10,516	8,544	53,331	74,864	20,090	26,965	121,919
1974/75	29,173	11,359	16,542	57,075	32,974	8,084	10,360	51,418	62,147	19,443	26,902	108,493
1975/76	14,783	8,371	10,503	33,657	19,611	10,297	7,763	37,671	34,394	18,668	18,266	71,328
1976/77	11,349	3,195	7,753	22,297	2,548	15,707	5,165	23,420	13,897	18,902	12,918	45,717
1977/78	19,112	7,424	53,086	79,622	11,249	9,938	74,967	96,154	30,361	17,362	128,053	175,776
1978/79	27,486	6,233	36,659	70,377	15,143	14,367	17,250	46,760	42,629	20,600	53,909	117,137
1979/80	11,229	8,082	54,416	73,726	6,602	14,549	39,753	60,904	17,831	22,631	94,169	134,630
1980/81	43,040	9,177	38,363	90,581	13,823	16,283	8,860	38,966	56,863	25,460	47,223	129,547
1981/82	19,299	9,667	37,730	66,696	11,239	19,143	8,283	38,665	30,538	28,810	46,013	105,361
1982/83	3,203	7,512	89,153	99,868	5,975	9,419	36,893	52,287	9,178	16,931	126,046	152,155
1983/84	18,815	9,647	38,395	66,857	912	17,371	18,667	36,950	19,727	27,018	57,062	103,807
1984/85	33,364	7,848	23,614	64,826	3,879	12,930	10,620	27,429	37,243	20,778	34,234	92,255
1985/86	8,128	9,234	51,913	69,275	10,927	16,806	13,045	40,778	19,055	26,040	64,958	110,053
1986/87	-	12,234			64,575	87,921			64,575	100,155	16,700	181,431
1987/88	16,105	12,560	22,508	51,173	6,529	24,678	22,125	53,332	22,634	37,238	44,633	104,505
1988/89	-	26,568			63,216	25,981			63,216	52,548	24,200	139,964
1989/90	7,079	25,629			72,196	24,560			79,275	50,188	26,400	155,864
1990/91	33,320	20,927			34,215	33,045			67,536	53,972	18,300	139,808
1991/92	28,695	19,156			58,381	28,679			87,077	47,835	71,000	205,911
1992/93	4,306	18,526			26,596	32,041			30,902	50,567	107,700	189,169
1993/94	7,599	26,654			25,893	27,361			33,492	54,015	36,800	124,307
1994/95	3,827	16,397			25,227	22,861			29,054	39,258	92,100	160,411
1995/96	12,304	24,154	41,514	77,972	3,899	26,502	13,709	44,110	16,203	50,656	55,223	122,082
1996/97	12,652	17,899	33,658	64,209	4,732	28,085	17,715	50,532	17,384	45,984	51,373	114,741
1997/98	889	14,984	52,958	68,831	-	19,594	32,580	52,174	889	34,578	85,538	121,005
1998/99	-	23,102	14,840	37,942	-	18,099	11,990	30,089	-	41,201	26,830	68,031
1999/00	43,441	16,093	5,700	65,234	1,596	27,049	15,036	43,681	45,037	43,142	20,736	108,915
2000/01									23,451	43,778	42,290	109,519
2001/02				72,874				47,597	41,268	60,596	18,607	120,471
2002/03				83,757				39,606	22,366	42,640	58,357	123,363
2003/04				64,399				38,512	27,520	44,924	30,467	102,911
2004/05				125,487				77,835	25,296	29,503	148,523	203,322
2005/06				86,222				49,400	33,229	42,022	60,377	135,628
2006/07				46,141				36,742	40,214	45,039	11,495	96,749

Notes:

1) These amounts may differ from those shown in WRD's Annual Engineering Survey and Report (ESR). The ESR reflects only water that WRD purchased for replenishment. However, some of this water may percolate or evaporate in San Gabriel Valley before it reaches the spreading grounds. Other entities such as LACDPW or the Main San Gabriel Basin Watermaster may also purchase replenishment water that is spread and accounted for in the above table. Recycled water is also provided by CSDLAC's Pomona treatment plant and is not paid for by WRD. This table reflects water which was actually conserved in the spreading grounds as reported by LACDPW.

2) Data for shaded areas in the above table were not available from LACDPW. In recent years, only total system recharge volumes could be reported, not relative imported/recycled/local volumes. Corresponding local water rechage volumes were calculated by subtracting imported and reclaimed water volumes from the total volume.

TABLE 2.2
HISTORICAL QUANTITIES OF ARTIFICIAL REPLENISHMENT
WATER AT SEAWATER INTRUSION BARRIERS
(Acre-feet)

WATER YEAR	ALAMITOS BARRIER (a)							DOMINGUEZ GAP BARRIER			WEST COAST BASIN BARRIER			TOTAL
	WRD			OCWD			Total							
	Imported	Recycled	Total	Imported	Recycled	Total		Imported	Recycled	Total	Imported	Recycled	Total	
1952/53											1,140		1,140	1,140
1953/54											3,290		3,290	3,290
1954/55											2,740		2,740	2,740
1955/56											2,840		2,840	2,840
1956/57											3,590		3,590	3,590
1957/58											4,330		4,330	4,330
1958/59											3,700		3,700	3,700
1959/60											3,800		3,800	3,800
1960/61											4,480		4,480	4,480
1961/62											4,510		4,510	4,510
1962/63											4,200		4,200	4,200
1963/64											10,450		10,450	10,450
1964/65	2,760		2,760	200		200	2,960				33,020		33,020	35,980
1965/66	3,370		3,370	350		350	3,720				44,390		44,390	48,110
1966/67	3,390		3,390	490		490	3,880				43,060		43,060	46,940
1967/68	4,210		4,210	740		740	4,950				39,580		39,580	44,530
1968/69	4,310		4,310	950		950	5,260				36,420		36,420	41,680
1969/70	3,760		3,760	720		720	4,480				29,460		29,460	33,940
1970/71	3,310		3,310	820		820	4,130	2,200		2,200	29,870		29,870	36,200
1971/72	4,060		4,060	930		930	4,990	9,550		9,550	26,490		26,490	41,030
1972/73	4,300		4,300	880		880	5,180	8,470		8,470	28,150		28,150	41,800
1973/74	6,140		6,140	1,150		1,150	7,290	7,830		7,830	27,540		27,540	42,660
1974/75	4,440		4,440	720		720	5,160	5,160		5,160	26,430		26,430	36,750
1975/76	4,090		4,090	570		570	4,660	4,940		4,940	35,220		35,220	44,820
1976/77	4,890		4,890	880		880	5,770	9,280		9,280	34,260		34,260	49,310
1977/78	4,020		4,020	830		830	4,850	5,740		5,740	29,640		29,640	40,230
1978/79	4,220		4,220	900		900	5,120	5,660		5,660	23,720		23,720	34,500
1979/80	3,560		3,560	580		580	4,140	4,470		4,470	28,630		28,630	37,240
1980/81	3,940		3,940	530		530	4,470	3,550		3,550	26,350		26,350	34,370
1981/82	4,540		4,540	390		390	4,930	4,720		4,720	24,640		24,640	34,290
1982/83	3,270		3,270	1,940		1,940	5,210	6,020		6,020	33,950		33,950	45,180
1983/84	2,440		2,440	1,400		1,400	3,840	7,640		7,640	28,000		28,000	39,480
1984/85	3,400		3,400	1,450		1,450	4,850	7,470		7,470	25,210		25,210	37,530
1985/86	3,410		3,410	1,860		1,860	5,270	6,160		6,160	20,260		20,260	31,690
1986/87	4,170		4,170	2,750		2,750	6,920	6,230		6,230	26,030		26,030	39,180
1987/88	3,990		3,990	2,170		2,170	6,160	7,050		7,050	24,270		24,270	37,480
1988/89	3,900		3,900	1,680		1,680	5,580	5,220		5,220	22,740		22,740	33,540
1989/90	4,110		4,110	2,000		2,000	6,110	5,736		5,736	20,279		20,279	32,125
1990/91	4,096		4,096	1,818		1,818	5,914	7,756		7,756	16,039		16,039	29,709
1991/92	4,172		4,172	1,553		1,553	5,725	6,894		6,894	22,180		22,180	34,799
1992/93	3,350		3,350	1,567		1,567	4,917	4,910		4,910	21,516		21,516	31,343
1993/94	2,794		2,794	1,309		1,309	4,103	5,524		5,524	15,482		15,482	25,109
1994/95	2,883		2,883	889		889	3,772	4,989		4,989	14,237	1,480	15,717	24,478
1995/96	3,760		3,760	2,010		2,010	5,770	5,107		5,107	12,426	4,170	16,596	27,473
1996/97	4,015		4,015	1,751		1,751	5,766	5,886		5,886	11,388	6,241	17,629	29,281
1997/98	3,677		3,677	1,503		1,503	5,180	3,771		3,771	8,173	8,308	16,481	25,432
1998/99	4,012		4,012	1,689		1,689	5,700	4,483		4,483	10,125	6,973	17,097	27,280
1999/00	4,028		4,028	1,709		1,709	5,737	6,010		6,010	11,172	7,460	18,632	30,379
2000/01	3,710		3,710	1,923		1,923	5,633	3,923		3,923	13,988	6,838	20,826	30,382
2001/02	3,961		3,961	2,232		2,232	6,193	5,459		5,459	12,724	7,276	20,000	31,652
2002/03	3,445		3,445	1,197		1,197	4,642	8,056		8,056	10,419	6,192	16,611	29,309
2003/04	3,876		3,876	2,092		2,092	5,968	6,089		6,089	9,304	3,669	12,973	25,030
2004/05	2,870		2,870	1,685		1,685	4,555	8,557		8,557	4,548	3,920	8,468	21,580
2005/06	1,042	921	1,963	330	254	584	2,547	7,259	1,450	8,709	5,997	4,249	10,246	21,502
2006/07	1,568	219	1,787	543	165	708	2,495	5,510	1,733	7,243	4,373	10,960	15,333	25,071

(a) Alamitos Barrier Water is purchased by WRD on the Los Angeles County side of the barrier, and by Orange County Water District on the Orange County side.

TABLE 2.3
WATER QUALITY OF REPLENISHMENT WATER
WATER YEAR 2005-2006

Constituent	Units	Treated Colorado River/State Project Water[a] 2006	Untreated Colorado River Water[b] 2006	Untreated State Project Water[b] 2006	West Basin MWD WRP[c] 2006	Terminal Island Treatment Plant[d] 2006	WRD Vander Lans WRP[e] 2006	Whittier Narrows WRP[b] 2006	San Jose Creek East WRP[b] 2006	San Jose Creek West WRP[b] 2006	Pomona WRP[b] 2006	Stormwater[f] 2004-2005
Total Dissolved Solids (TDS)	mg/L	344/273	671	245	37.5	57	16	567	596	510	518	255
Hardness	mg/L	140/120	320	98	18.8	6.2	NA	178	197	184	204	148
Sulfate	mg/L	116/69	270	41	2	2	ND	93	105	79	65	50
Chloride	mg/L	61/50	96	51	4.7	23	5.5	113	141	105	115	43
Nitrogen (Nitrate as N)	mg/L	0.44/0.47	0.31	0.56	0.2	0.7	0.9	6.49	2.97	6.65	4.14	1.5
Iron	mg/L	ND/ND	ND	ND	ND	ND	ND	<0.19	0.23	<0.22	<0.22	0.263
Manganese	ug/L	ND/ND	ND	ND	0.077	ND	ND	0.007	0.027	0.018	0.004	19
Trichloroethylene (TCE)	ug/L	ND/ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
Tetrachloroethylene (PCE)	ug/L	ND/ND	ND	ND	0.2	ND	ND	NA	NA	NA	NA	NA
Total Organic Carbon (TOC)	mg/L	2.2/2.4	3.1	3	0.23	NA	0.29	5.71	5.28	5.25	6.44	15.23
Perchlorate	ug/L	ND/ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA

Notes:

a = Used at the seawater intrusion barriers, generally Weymouth Plant product to Dominguez Gap and Alamitos Barriers, and Jensen Plant product to the West Coast Barrier.

b = Used at the Montebello Forebay spreading grounds

c = Used at the West Coast Basin Barrier and blended with Treated Colorado River/State Project Water

d = Used at the Dominguez Gap Barrier and blended with Treated Colorado River/State Project Water

e = Used at Alamitos Barrier and blended with Treated Colorado River/State Project Water

f = Average concentration data from LACDPW, for samples collected from San Gabriel River Station 12 WY 2004-2005

Sources of data:

2006 Water Quality Report to MWD Member Agencies
Montebello Forebay Groundwater Recharge annual report (CSDLAC, December 2006)
West Basin Water Recycling Facility Annual Report (West Basin MWD, 2006)
Los Angeles County Department of Public Works
Harbor Water Recycling Project 2006 Monthly Compliance Report Averages
Alamitos Barrier Recycled Water Project 2006 Annual Monitoring Report

NA = not available ND = none detected

TABLE 3.1
HISTORICAL AMOUNTS OF GROUNDWATER PRODUCTION
(Acre-feet)

WATER YEAR	CENTRAL BASIN	WEST COAST BASIN	TOTAL
1960/61	292,500	61,900	354,400
1961/62	275,800	59,100	334,900
1962/63	225,400	59,100	284,500
1963/64	219,100	61,300	280,400
1964/65	211,600	59,800	271,400
1965/66	222,800	60,800	283,600
1966/67	206,700	62,300	269,000
1967/68	220,100	61,600	281,700
1968/69	213,800	61,600	275,400
1969/70	222,200	62,600	284,800
1970/71	211,600	60,900	272,500
1971/72	216,100	64,800	280,900
1972/73	205,600	60,300	265,900
1973/74	211,300	55,000	266,300
1974/75	213,100	56,700	269,800
1975/76	215,300	59,400	274,700
1976/77	211,500	59,800	271,300
1977/78	196,600	58,300	254,900
1978/79	207,000	58,000	265,000
1979/80	209,500	57,100	266,600
1980/81	211,915	57,711	269,626
1981/82	202,587	61,874	264,461
1982/83	194,548	57,542	252,090
1983/84	196,660	51,930	248,590
1984/85	193,085	52,746	245,831
1985/86	195,889	52,762	248,650
1986/87	196,587	48,026	244,613
1987/88	194,561	43,833	238,394
1988/89	200,105	44,162	244,267
1989/90	197,811	47,904	245,715
1990/91	186,977	53,075	240,052
1991/92	196,382	55,964	252,346
1992/93	150,386	40,058	190,444
1993/94	156,930	41,768	198,697
1994/95	181,164	41,396	222,560
1995/96	182,067	52,759	234,826
1996/97	187,452	52,581	240,033
1997/98	188,988	51,841	240,829
1998/99	204,418	51,331	255,749
1999/00	197,946	53,579	251,525
2000/01	195,255	53,842	249,047
2001/02	199,900	50,066	249,966
2002/03	190,082	51,789	241,871
2003/04	200,332	47,965	248,297
2004/05	188,673	41,235	229,908
2005/06	191,030	36,714	227,744
2006/07	198,115	37,655	235,770

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2006-2007

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Carson #1						Reference Point Elevation: 24.16
Depth of Well	990-1010	740-760	460-480	250-270		
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage		
12/20/2006	-49.18	-47.46	-15.28	-13.85		
3/27/2007	-49.33	-47.76	-15.03	-13.52		
6/22/2007	-48.47	-47.17	-15.02	-13.41		
9/19/2007	-50.72	-49.24	-16.4	-14.57		
Carson #2						Reference Point Elevation: 39.81
Depth of Well	1230-1250	850-870	600-620	450-470	230-250	
Aquifer Name	Sunnyside	Silverado	Silverado	Lynwood	Gage	
12/20/2006	-37.22	-30.97	-30.74	-28.11	-26.2	
3/30/2007	-36.71	-31.51	-31.25	-28.47	-26.4	
6/20/2007	-37.18	-31.61	-31.32	-28.53	-26.43	
9/10/2007	-37.92	-32.61	-42.37	-29.3	-27.09	
9/19/2007	-37.9	-33.17	-32.85	-29.57	-27.25	
Cerritos #1						Reference Point Elevation: 40.72
Depth of Well	1155-1175	1000-1020	610-630	270-290	180-200	125-135
Aquifer Name	Sunnyside	Sunnyside	Lynwood	Gage	Artesia	Artesia
10/2/2006	-37.06	-42.95	-34.72	15.15	19.21	19.2
10/26/2006	-31.3	-34.8	-28.1	15.93	19.65	19.66
12/21/2006	-18.65	-22.23	-26.05	17.75	21.13	21.14
3/27/2007	-18.58	-19.24	-21.54	19.12	21.99	21.96
4/17/2007	-21.06	-22.91	-22.69	18.64	21.66	21.63
6/25/2007	-42.98	-47.81	-39.71	14.9	18.77	18.74
9/13/2007	-53.87	-56.16	-49.54	10.87	15.35	15.28
9/19/2007	-54.7	-56.97	-48.72	11.02	15.57	15.56
Cerritos #2						Reference Point Elevation: 75.27
Depth of Well	1350-1370	915-935	740-760	490-510	350-370	150-170
Aquifer Name	Sunnyside	Silverado	Silverado	Jefferson	Gage	Gaspur
10/26/2006	-6.79	-20.2	-20.06	0.62	24.97	32.71
12/21/2006	1.28	-7.25	-15.95	2.86	25.73	33.07
3/30/2007	4.9	-8.9	-18.1	2.79	26.55	33.75
6/26/2007	-6.89	-28.55	-27.11	-3.33	24.38	32.48
9/17/2007	-18.54	-34.5	-32.09	-8.1	22.2	30.94
Chandler #3						Reference Point Elevation: 153.2
Depth of Well	341-363	165-192				
Aquifer Name	Gage/Lynw/Silv	Gage/Lynw/Silv				
12/20/2006	-18.86					
02/20/2007	-18.1	-18.56				
03/27/2007	-18.31	-17.94				
06/27/2007	-18.24	-18.11				
08/30/2007	-18.34	-18.27				
09/27/2007	-18.24	-18.05				
Commerce #1						Reference Point Elevation: 170.09
Depth of Well	1330-1390	940-960	760-780	570-590	325-345	205-225
Aquifer Name	Pico Formation	Sunnyside	Sunnyside	Silverado	Hollydale	Exposition/Gage
10/3/2006	59.45	63.86	60.48	31.21	28.76	58.28
1/5/2007	59.46	66.41	63.68	35.47	34.39	59.19
3/31/2007		67.33	64.21	34.2	35.38	59.41
6/28/2007	60.28	63.23	59.27	30.53	30.95	59
9/24/2007	59.56	58.47	54.27	22.26	26.37	58.04
Compton #1						Reference Point Elevation: 67.17
Depth of Well	1370-1390	1150-1170	800-820	460-480	325-345	
Aquifer Name	Sunnyside	Sunnyside	Silverado	Hollydale	Gage	
10/2/2006	-49.89	-49.58	-12.71	-1.08	2.05	
12/21/2006	-16.16	-16.1	-5.48	4.39	6.38	
3/27/2007	-9.51	-9.5	-5.72	2.49	4.73	
5/11/2007	-20	-19.86	-6.67	2.31	4.2	
6/27/2007	-45.84	-45.54	-12.44	-1.81	2.08	
9/5/2007	-61.38	-61.2	-42.73	-6.16	-1.99	
9/18/2007	-62.74	-62.45	-20.42	-6.83	-3.35	

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2006-2007

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Compton #2						Reference Point Elevation: 75
Depth of Well	1479-1495	830-850	585-605	380-400	295-315	150-170
Aquifer Name	Sunnyside	Sunnyside	Silverado	Hollydale	Gage	Exposition
3/30/2007	4.06	-23.53	-29.34	-28.96	-25.74	-16.85
6/26/2007	6.17	-32.61	-36.58	-35.74	-28.21	-17.82
8/17/2007	-0.99	-40.4	-36.58	-35.56	-29.7	-19.24
9/6/2007	-4.37	-43.45	-40.03	-38.96	-31.19	-20.63
9/10/2007	-5.08	-44.06	-39.08	-38.1	-31.15	-20.75
9/19/2007	-6.59	-44.83	-38.59	-37.33	-31.09	-20.72
Gardena #1						Reference Point Elevation: 80.79
Depth of Well	970-990	445-465	345-365	120-140		
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage		
12/26/2006	-54.55	-108.48	-87.73	-12.55		
3/29/2007	-54.44	-125.4	-91.96	-12.47		
4/11/2007	-54.68	-109.91	-89.48	-12.35		
4/25/2007	-54.51	-125.61	-94.1	-12.33		
6/26/2007	-55.55	-128.96	-97.25	-12.47		
7/9/2007	-55.66	-127.66	-96.86	-12.31		
8/23/2007	-55.76	-130.67	-99.08	-12.16		
9/17/2007	-56.14	-129.93	-99.55	-12.38		
Gardena #2						Reference Point Elevation: 26.74
Depth of Well	1275-1335	770-790	610-630	340-360	235-255	
Aquifer Name	Sunnyside	Silverado	Silverado	Lynwood	Gardena	
12/26/2006	-41.96	-48.94	-49.05	-21.05	-10.32	
3/30/2007	-41.51	-51.48	-51.63	-22.19	-10.76	
6/26/2007	-41.94	-53.33	-53.49	-22.57	-10.73	
9/11/2007		-55.3	-55.88	-23.51	-11.3	
9/17/2007	-42.6	-55.71	-55.88	-23.6	-11.28	
Hawthorne #1						Reference Point Elevation: 86.35
Depth of Well	910-950	710-730	520-540	400-420	240-260	110-130
Aquifer Name	Sunnyside	Silverado	Silverado	Silverado	Lynwood	Gage
12/21/2006	-69.2	-8.66	-7.87	-7.74	-5.09	0.31
3/27/2007	-82.9	-11.15	-10.26	-10.09	-6.34	
6/22/2007	-64.11	-11.26	-10.21	-10.02	-6.4	1.04
9/28/2007	-80.99	-11.76	-11.27	-10.7	-6.88	1.27
Huntington Park #1						Reference Point Elevation: 177.08
Depth of Well	890-910	690-710	420-440	275-295	114-134	
Aquifer Name	Silverado	Jefferson	Gage	Exposition	Gaspur	
12/26/2006	-22.99	-22.66	-25.28	15.31	Dry	
3/27/2007	-25.09	-24.99	-27.32	14.96	Dry	
5/30/2007	-25.24	-25.84	-27.96	14.66	Dry	
6/26/2007	-27.43	-31.83	-23.94	14.07	Dry	
9/5/2007	-29.74	-32.14	-26.77	13.77	Dry	
9/26/2007	-29.49	-29.81	-24.07	13.89	Dry	
Inglewood #1						Reference Point Elevation: 110.56
Depth of Well	1380-1400		430-450	280-300	150-170	
Aquifer Name	Pico Formation	Abandoned	Silverado	Lynwood	Gage	
10/10/2006	-36.03		-52.75	-2.56	3.08	
12/21/2006	-34.86		-44.98	-1.23	3.32	
3/27/2007	-33.93		-45.23	-1.42	3.78	
5/10/2007	-35.42		-42.57	-0.56	3.99	
6/22/2007	-35.01		-42.35	-0.58	4.22	
9/26/2007	-34.67		-47.92	-1.02	4.37	
Inglewood #2						Reference Point Elevation: 217.33
Depth of Well	800-840	450-470	330-350	225-245		
Aquifer Name	Pico Formation	Sunnyside	Silverado	Lynwood		
12/21/2006	-24.1	-17.83	-7.29	-3.1		
3/27/2007	-23.08	-17.27	-6.88	-2.72		
6/22/2007	-23.03	-17.28	-6.93	-2.79		
8/23/2007	-22.96	-17.16	-6.84			
9/21/2007	-23.16	-17.18	-6.75	-2.59		

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2006-2007

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Lakewood #1						Reference Point Elevation: 37.91
Depth of Well	989-1009	640-660	450-470	280-300	140-160	70-90
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage	Artesia	Bellflower
10/5/2006	-51.24	-43.4	-42.63	-21.16	-10.02	13.59
1/3/2007	-25.13	-26.93	-26.04	-14.76	-6.33	13.99
3/29/2007	-20.7	-25.25	-25.86	-20.08	-8.02	13.97
5/9/2007	-30.23	-31.09	-31.62	-21.02	-8.6	13.89
6/27/2007	-49.44	-42.17	-42.7	-24.55	-10.61	13.5
9/17/2007	-22.85	-52.84	-53.51	-29.1	-14.1	12.11
La Mirada #1						Reference Point Elevation: 75.85
Depth of Well	1130-1150	965-985	690-710	470-490	225-245	
Aquifer Name	Sunnyside	Silverado	Lynwood	Jefferson	Gage	
10/25/2006	-6.39	-5.87	-24.58	-36.94	-12.45	
12/22/2006	5	3.79	-9.84	-13.72	-5.12	
3/29/2007	11.89	9.78	-17	-25.31	-5.5	
6/26/2007	-6.17	-5.22	-36.37	-60.68	-20.41	
9/5/2007	-26.53	-24.05	-49.52	-70.15	-30.05	
9/17/2007	-28.8	-26.1	-50.36	-70.94	-27.03	
Lomita #1						Reference Point Elevation: 76.91
Depth of Well	1240-1260	700-720	550-570	400-420	220-240	100-120
Aquifer Name	Sunnyside	Sunnyside	Silverado	Silverado	Gage	Gage
12/20/2006	-30.18	-19.85	-19.3	-19.58	-17.53	-19.11
2/20/2007	-29.78	-19.25	-18.99	-18.97	-17.2	-18.56
3/30/2007	-29.96	-19.2	-18.85	-18.85	-17.01	-18.43
6/20/2007	-30.05	-19.8	-19.36	-19.56	-16.9	-19.12
9/24/2007	-31.82	-20.59	-19.62	-20.09	-16.92	-19.63
Long Beach #1						Reference Point Elevation: 28.69
Depth of Well	1430-1450	1230-1250	970-990	599-619	400-420	155-175
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Jefferson	Gage
10/26/2006	-14.82	-16.57	-39.73	-32.85	-30.71	-8
12/27/2006	-0.68	-1.78	-18.41	-19.77	-20.2	-6.56
3/26/2007	10.71	9.76	-11.66	-16.06	-16.19	-7.65
6/26/2007	-8.63	-11.55	-64.87	-44.63	-45.89	-19.19
9/20/2007	-36.32	-39.54	-89.07	-53.51	-50.52	-21.52
9/24/2007	-37.33	-40.56	-87.85	-53.41	-50.17	-20.83
Long Beach #2						Reference Point Elevation: 42.15
Depth of Well	970-990	720-740	450-470	280-300	160-180	95-115
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Jefferson	Gage
12/20/2006	-23.53	-21.31	-32.71	-5.54	2.31	3.53
3/28/2007	-9.16	-20.04	-31.78	-5.53	2.4	3.87
4/10/2007	-8.67	-22.72	-32.2	-5.67	2.33	3.82
6/26/2007	-71.63	-38.67	-35.62	-7.97	1.41	3.27
9/6/2007	-89.1	-47.48	-37.32	0.46	0.46	2.49
9/27/2007	-91.55	-48.18	-36.58	-10.48	0.33	2.55
Long Beach #3						Reference Point Elevation: 24.60
Depth of Well	1350-1390	997-1017	670-690	530-550	410-430	
Aquifer Name	Sunnyside	Silverado	Silverado	Silverado	Lynwood	
12/20/2006	-36.31	-46.76	-46.86	-47.17	1.8	
3/29/2007	-34.79	-47.45	-47.47	-47.79	1.98	
6/27/2007	-35.4	-47.37	-47.35	-47.69	-1.68	
7/16/2007	-35.43	-48.91	-48.92	-49.25	-4.25	
9/10/2007	-37.15	-47.97	-47.85	-48.22	-12.33	
9/27/2007	-35.94	-48.85	-48.85	-49.21	-4.34	
Long Beach #4						Reference Point Elevation: 9.52
Depth of Well	1200-1220	800-820				
Aquifer Name	Pico Formation	Sunnyside				
12/29/2004	-41.7	-21.51				
04/12/2005	-40.01	-21.15				
06/28/2005	-38.59	-16.47				
09/26/2005	-38.5	-16.96				

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2006-2007

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Long Beach #6						Reference Point Elevation: 32.53
Depth of Well	1490-1510	930-950	740-760	480-500	380-400	220-240
Aquifer Name	Pico Formation	Sunnyside	Sunnyside	Silverado	Lynwood	Gage
10/5/2006	-28.57	-49.89	-51.08	-87.95	-87.87	-32.93
10/27/2006	-23.78	-30.47	-30.76	-42.73	-42.7	-28.41
12/20/2006	-9.56	-12.08	-12.25	-20.26	-21.25	-20.58
3/29/2007	5.73	2.89	2.75	-10.15	-10.16	-18.95
4/10/2007	6.58	3.81	3.72	-8.83	-8.84	-18.58
6/26/2007	-13.46	-40.3	-42.12	-107.24	-107.16	-31.03
9/25/2007	-46.02	-72.75	-74.26	-123.65	-124.59	-37.46
Long Beach #8						Reference Point Elevation: 17.78
Depth of Well	1435-1455	1020-1040	780-800	635-655	415-435	165-185
Aquifer Name	Pico Formation	Sunnyside	Silverado	Silverado	Lynwood	Gage
12/20/2006	-17.93	-33.93	-44.18	-42.27	-41.93	2.81
3/29/2007	-17.2	-32.65	-43.72	-41.86	-41.41	3.01
6/20/2007	-17.27	-33.24	-44.38	-42.24	-41.91	2.87
9/21/2007	-17.33	-33.71	-45.22	-43.12	-42.68	2.01
Los Angeles #1						Reference Point Elevation: 173.63
Depth of Well	1350-1370	1080-1100	920-940	640-660	350-370	
Aquifer Name	Pico Formation	Sunnyside	Silverado	Lynwood	Gage	
12/28/2006	-16.11	-18.42	-19.96	-24.68	-23.39	
3/30/2007	-13.02	-19.12	-21.39	-25.45	-23.2	
6/26/2007	-13.09	-19.96	-22.26	-27.01	-22.49	
9/26/2007	-16.73	-22.81	-24.2	-28.4	-24	
Montebello #1						Reference Point Elevation: 192.60
Depth of Well	960-980	690-710	500-520	370-390	210-230	90-110
Aquifer Name	Pico Formation	Sunnyside	Silverado	Lynwood	Gage	Exposition
12/28/2006	109.48	107.48	106.71	102.56	101.23	
3/29/2007	111.3	109.49	108.67	104.36	102.54	
5/9/2007	111.59	108.9	108.07	103.85	103.68	
6/28/2007	106.41	101.03	100.22	96.57	100.94	
9/19/2007	97.62	92.18	90.96	88.42	93.58	93.89
Norwalk #1						Reference Point Elevation: 95.44
Depth of Well	1400-1420	990-1010	720-740	430-450	220-240	
Aquifer Name	Sunnyside	Silverado	Lynwood	Jefferson	Gage	
10/26/2006	39.13	4.46	21.66	7.16	5.31	
12/21/2006	45.08	14.02	26.89	10.28	6.96	
3/27/2007	49.83	24.08	32.5	11.64	9.65	
4/25/2007	49.43	25.37	32.7	11.69	9.72	
4/27/2007	49.38	25.41	32.85	11.86	9.86	
6/25/2007	45.83	15.46	27.35	6.9	6.75	
7/16/2007	43.69	9.38	23.51	5.52	5.71	
9/5/2007	37.65	-2.76	16.01	3.25	3.39	
9/18/2007	36.75	-5.4	14.16	2.66	2.97	
Norwalk #2						Reference Point Elevation: 107.4
Depth of Well	1460-1480	1260-1280	960-980	800-820	480-500	236-256
Aquifer Name	Not Interpreted					
12/28/2006	23.74	23.85	24.89	26.67	29.06	33.02
1/17/2007	25.94	26.01	27.08	28.7	27.19	32.45
3/29/2007	29.92	29.72	30.04	30.79	26.51	32.44
5/8/2007	31.27	31.07	30.81	31	25.62	32.34
7/3/2007	25.68	25.49	18.84	19.8	19.93	29.03
8/20/2007	17.52	17.35	9.18	11.04	16.9	26.62
9/10/2007	13.85	13.86	5.4	7.76	15.27	26.06
9/27/2007	11.43	11.41	3.65	6.36	17.12	26.24
Pico #2						Reference Point Elevation: 149.6
Depth of Well	1180-1200	830-850	560-580	320-340	235-255	100-120
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Silverado	Lynwood	Gaspur
12/27/2006	94.44	94.43	97.92	104.74	102.98	112.22
3/28/2007	96.24	94.78	99.9	106.28	104.78	113.65
4/13/2007	97.33	96.54	101.21	106.86	104.94	115.84
6/13/2007	87.06	85.24	92.59	106.45	106.21	114.2
9/27/2007	72.61	71.3	77.92	93.28	93.74	98.48

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2006-2007

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
PM-3 Madrid						Reference Point Elevation: 70.68
Depth of Well	640-680	480-520	240-280	145-185		
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage		
12/20/2006	-12.35	-9.85	-9.79	-9.78		
3/27/2007	-12.23	-9.64	-9.59	-9.56		
6/22/2007	-12.18	-9.55	-9.44	-9.45		
8/30/2007	-12.24	-9.77	-9.76	-9.77		
9/26/2007	-12.62	-9.87	-9.85	-9.82		
PM-4 Mariner						Reference Point Elevation: 97.7
Depth of Well	670-710	500-540	340-380	200-240		
Aquifer Name	Sunnyside	Silverado	Lynwood	Lynwood		
12/20/2006	-7.28	-6.08	-2.99	-2.94		
3/31/2007	-7.27	-5.45	-2.5	-2.45		
6/22/2007	-7.31	-5.56	-2.59	-2.56		
8/26/2007	-7.38	-5.95	-3.12	-3.06		
9/28/2007	-7.32	-5.06	-2.07	-2.04		
Rio Hondo #1						Reference Point Elevation: 144.36
Depth of Well	1110-1130	910-930	710-730	430-450	280-300	140-160
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Silverado	Lynwood	Gardena
12/26/2006	85.44	87.29	86.6	76.37	81.16	83.52
3/28/2007	87.19	89.8	89.14	79.16	85.1	86.86
6/29/2007	78.51	75.09	74.34	67.99	77.88	81.36
9/27/2007	68.98	64.97	64.15	55.92	67.04	70.82
South Gate #1						Reference Point Elevation: 90.96
Depth of Well	1440-1460	1320-1340	910-930	565-585	220-240	
Aquifer Name	Pico Formation	Sunnyside	Silverado	Lynwood	Exposition	
12/26/2006	4.14	6.02	7.71	5.1	36.24	
3/28/2007	4.68	6.28	7.16	1.84	36.58	
6/27/2007	-1.45	0.4	1.41	-1.61	35.9	
9/24/2007	-10.91	-7.01	-3.42	-5.85	34.83	
Westchester #1						Reference Point Elevation: 124.27
Depth of Well	740-760	560-580	455-475	310-330	215-235	
Aquifer Name	Pico Formation	Sunnyside	Silverado	Lynwood	Gage	
12/21/2006	1.48	7.76	8.02	8.15		
3/27/2007	1.36	8.13	8.39	8.5	8.57	
6/22/2007	1.74	8.14	8.44	8.48	8.56	
9/13/2007	8.37	1.95	8.73	8.69	8.75	
9/21/2007	1.1	8.49	8.76	8.8	8.86	
Whittier #1						Reference Point Elevation: 217.17
Depth of Well	1180-1200	920-940	600-620	450-470	200-220	
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Gage	
10/27/2006	124.65	124.72	117.61	115.73	200.39	
1/4/2007	125.03	125.06	118.29	116.63	200.1	
4/6/2007	126.12	126.06	119.55	119.07	199.9	
6/25/2007	125.95	125.97	119.19	117.5	199.55	
9/25/2007	126.35	126.16	117.95	116.15	199.19	
Whittier #2						Reference Point Elevation: 160
Depth of Well	1370-1390	1090-1110	655-675	425-445	315-335	150-170
Aquifer Name	Sunnyside	Sunnyside	Silverado	Silverado	Lynwood	Gardena
12/9/2006	107.53	98.13	95.23	96.93	112.83	118.53
1/4/2007	99.01	99.23	100.65	101.53	115.3	120.35
3/28/2007	100.68	100.98	98.12	98.15	114.91	120.87
4/26/2007	101.69	102	100.85	102.54	117.71	123.28
5/9/2007	101.53	101.75	95.94	94.83	117.09	123.28
6/25/2007	97.85	98	88.86	93.08	113.87	121.1
8/22/2007	93.21	93.4	77.53	76.85	104.2	114.01
9/10/2007	91.16	91.39	75.74	77.99	102.55	112.37
9/12/2007	91.1			74.29	102.02	112.2

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2006-2007

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Willowbrook #1						Reference Point Elevation: 96.21
Depth of Well	885-905	500-520	360-380	200-220		
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage		
12/21/2006	-20.5	-26.86	-19.75	-19.4		
1/8/2007	-18.51	-26.16	-19.55	-19.18		
3/30/2007	-29.37	-27.27	-21.04	-20.54		
6/26/2007	-36.22	-29.42	-22.02	-21.33		
9/30/2007	-48.47	-32.66	-25.35	-24.61		
Wilmington #1						Reference Point Elevation: 37.96
Depth of Well	915-935	780-800	550-570	225-245	120-140	
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Gage	
12/21/2006	-44.51	-44.83	-44.9	-16.05	-12.85	
2/20/2007	-43.29	-43.61	-43.73	-16.11	-12.89	
3/27/2007	-45.68	-45.98	-46.2	-16.09	-12.75	
6/20/2007	-46	-46.32	-46.5	-16.21	-12.88	
8/27/2007	-46.77	-47.13	-47.26	-19.65	-16.47	
9/24/2007	-47.27	-47.67	-47.81	-19.43	-16.15	
Wilmington #2						Reference Point Elevation: 29.78
Depth of Well	950-970	755-775	540-560	390-410	120-140	
Aquifer Name	Sunnyside	Silverado	Lynwood	Lynwood	Gage	
12/21/2006	-32.27	-28.28	-24.1	-23.34	-6.7	
3/27/2007	-32.93	-28.71	-24.18	-23.35	-6.76	
6/26/2007	-33.11	-28.83	-24.47	-23.64	-6.78	
8/21/2007	-34.27	-30.09	-26.29	-25.55	-8.01	
9/24/2007	-34.28	-29.94	-25.85	-25.15	-7.43	
Whittier Narrows #1						Reference Point Elevation: 215.14
Depth of Well	749-769	609.5-629	462.5-482.5	392.5-402	334-343.5	272.5-282.5
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Silverado	Silverado	Lynwood
3/28/2007	183.68	184.26	186.19	191.32	192.2	193.2
9/27/2007	170.66	172.8	176.05	184.23	185.14	186.25
				ZONE 7	**ZONE 8**	**ZONE 9**
				233.5-243	163-173	95-104.5
				Jefferson	Gardena	Gaspur
3/28/2007				192.97	192.97	192.63
9/27/2007				186.23	186.18	187.55

TABLE 4.1
MAJOR MINERAL WATER QUALITY GROUPS

GROUP A Generally Calcium Bicarbonate or Calcium Bicarbonate/Sulfate Dominant	GROUP B Generally Calcium-Sodium-Bicarbonate or Sodium-Bicarbonate Dominant	GROUP C Generally Sodium-Chloride Dominant	OTHER Generally Different Than Groups A, B, and C
CENTRAL BASIN			
Cerritos #1 Zones 1, 2, 3, 4, 5, 6 Commerce #1 Zones 2,3,4,5,6 Downey #1 Zones 2, 3, 4, 5, 6 Huntington Park #1 Zones 1, 2, 3, 4 Lakewood #1 Zone 6 Long Beach #1 Zones 5,6 Long Beach #2 Zones 4,5,6 Rio Hondo #1 Zones 1, 2, 3, 4, 5, 6, Pico #1 Zones 2, 3, 4 Pico #2 Zones 1, 2, 3, 4, 5, 6 South Gate #1 Zones 1, 2, 3, 4, 5 Whittier #1 Zones 1,2,3,4,5 Willowbrook #1 Zones 2, 3, 4 Los Angeles #1 Zones 1, 2, 3, 4, 5 Montebello #1 Zones 3, 4, 5 Cerritos #2 Zones 1, 2, 3, 4, 5, 6 Compton #1 Zones 2,3,4,5 Norwalk #1 Zones 4,5 Compton #2 Zones 3,4,5 Norwalk #2 Zones 3,4,5,6 Whittier #2 Zones 1,3,4,5,6	Downey #1 Zone 1 Inglewood #2 Zones 1,3 Lakewood #1 Zones 1,2, 3, 4, 5 La Mirada #1 Zones 1, 2, 3, 4 Willowbrook #1 Zone 1 Long Beach #1 Zones 1,2,3,4 Long Beach #2 Zones 1,2,3 Long Beach #6 Zones 1,2 ,3 ,4 ,5 ,6 Montebello #1 Zones 1,2 Compton #1 Zone 1 Compton #2 Zone 1 Norwalk #2 Zones 1,2 Whittier #2 Zone 2 Norwalk #1 Zones 1,2,3	Inglewood #2 Zone 2	La Mirada #1 Zone 5 Pico #1 Zone 1
WEST COAST BASIN			
Carson #1 Zones 3, 4 Gardena #1 Zones 2, 3, 4 Hawthorne #1 Zones 5,6 Inglewood #1 Zones 3, 4, 5 PM-3 Madrid Zones 3,4	Carson #1 Zones 1, 2 Hawthorne #1 Zones 1,2,3,4 PM-3 Madrid Zone 2 Wilmington #2 Zone 3 Long Beach #3 Zones 1, 2, 3 Carson #2 Zones 1, 2, 3, 4, 5 Westchester #1 Zones 1, 2, 3, 4, 5	PM-4 Mariner Zones 2,3,4 Wilmington #1 Zones 1, 2, 3, 4, 5 Wilmington #2 Zones 4, 5 Long Beach #3 Zones 4, 5	Gardena #1 Zone 1 Inglewood #1 Zone 1 Lomita #1 Zones 1, 2, 3, 4, 5, 6 PM-3 Madrid Zone 1 PM-4 Mariner Zone 1 Wilmington #2 Zone 1,2

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 1 of 25

Water Quality Constituents	Units	MCL	MCL Type	Cerritos #1 Zone 1 05/02/07	Cerritos #1 Zone 1 09/13/07	Cerritos #1 Zone 2 05/02/07	Cerritos #1 Zone 2 09/13/07	Cerritos #1 Zone 3 05/02/07	Cerritos #1 Zone 3 09/13/07	Cerritos #1 Zone 4 05/02/07	Cerritos #1 Zone 4 09/13/07	Cerritos #1 Zone 5 05/02/07	Cerritos #1 Zone 5 09/13/07	Cerritos #1 Zone 6 05/02/07	Cerritos #1 Zone 6 09/13/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	282	270	282	256	304	314	280	284	240	266	274	262
Cation Sum	meq/l			4.8	4.7	4.4	4.4	5.2	5.2	4.9	4.9	4.6	4.5	4.6	4.5
Anion Sum	meq/l			4.8	4.7	4.4	4.4	5.2	5.2	4.8	4.8	4.5	4.5	4.6	4.6
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	0.024	0.021	0.083	0.083	0.058	0.054	0.061	0.065
Manganese, Total, ICAP/MS	ug/l	50	S	26	27	31	33	45	47	**80**	**84**	**114**	**120**	**140**	**140**
Turbidity	NTU	5	S	0.15	0.1	0.1	0.1	0.1	0.15	0.2	0.2	0.15	0.15	0.35	0.2
Alkalinity	mg/l			165	163	156	155	171	170	181	178	181	178	190	189
Boron	mg/l			0.099	0.085	0.076	0.076	0.1	0.085	0.096	0.084	0.095	0.092	0.09	0.089
Bicarbonate as HCO3,calculated	mg/l			200	200	190	190	210	210	220	220	220	220	230	230
Calcium, Total, ICAP	mg/l			35	36	34	33	42	44	45	47	39	38	45	44
Carbonate as CO3, Calculated	mg/l			2.6	2.1	2	3.1	ND	3.4	ND	2.9	ND	4.5	ND	3
Hardness (Total, as CaCO3)	mg/l			110	110	110	110	130	140	160	160	140	140	150	150
Chloride	mg/l	500	S	14	14	12	13	19	19	12	13	9.8	10	9.3	9.2
Fluoride	mg/l	2	P	0.27	0.29	0.38	0.37	0.41	0.4	0.59	0.56	0.51	0.49	0.33	0.32
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.7	0.6	0.6	0.8	0.6	0.9	0.7	0.9	0.5	1	0.6	0.9
Magnesium, Total, ICAP	mg/l			4.8	4.8	5.7	5.6	6.1	6.2	11	11	9.7	9.8	9.3	9.3
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.2	2.2	2.2	2.1	1.9	2	1.9	2	1.9	1.9	2	2
Sodium, Total, ICAP	mg/l			59	57	51	51	58	56	38	37	42	41	35	35
Sulfate	mg/l	500	S	50	50	42	42	60	61	40	41	29	30	24	24
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			0.3	ND	0.4	ND	ND	ND	0.4	ND	0.3	ND	0.3	0.36
Carbon Dioxide	mg/l			ND	2.1	2	ND	2.7	ND	2.9	ND	3.6	ND	3.8	ND
General Physical Properties															
Apparent Color	ACU	15	S	3	3	3	ND	3	ND	5	ND	5	3	3	3
Lab pH	Units			8.3	8.2	8.2	8.4	8.1	8.4	8.1	8.3	8	8.5	8	8.3
Odor	TON	3	S	**3**	2	**3**	2	**17**	2	**8**	2	**17**	2	**8**	2
pH of CaCO3 saturation(25C)	Units			7.6	7.6	7.6	7.6	7.5	7.5	7.4	7.4	7.5	7.5	7.4	7.4
pH of CaCO3 saturation(60C)	Units			7.2	7.1	7.2	7.2	7.1	7	7	7	7.1	7.1	7	7
Specific Conductance	umho/cm	1600	S	480	464	440	429	510	510	460	467	440	437	440	434
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	**17**	**16**	**13**	**12**	**23**	**21**	6.2	6	**10**	8.8	**42**	**36**
Barium, Total, ICAP/MS	ug/l	1000	P	47	50	99	110	120	120	59	62	75	80	96	100
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	1.9	ND	1.7	ND	2.1	ND	2.3	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 2 of 25

Water Quality Constituents	Units	MCL	MCL Type	Cerritos #2 Zone 1 05/02/07	Cerritos #2 Zone 1 09/17/07	Cerritos #2 Zone 2 05/02/07	Cerritos #2 Zone 2 09/17/07	Cerritos #2 Zone 3 05/02/07	Cerritos #2 Zone 3 09/17/07	Cerritos #2 Zone 4 05/02/07	Cerritos #2 Zone 4 09/17/07	Cerritos #2 Zone 5 05/02/07	Cerritos #2 Zone 5 09/17/07	Cerritos #2 Zone 6 05/02/07	Cerritos #2 Zone 6 09/17/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	220	196	376	472	230	194	226	228	256	222	826	834
Cation Sum	meq/l			3.7	3.6	8.3	8.1	3.8	3.8	4.3	4.2	4.2	4.2	15	15
Anion Sum	meq/l			3.7	3.7	8.4	8.2	3.7	3.7	4.2	4.2	4.2	4.1	15	15
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND	0.037	0.029	0.092	0.078	0.23	0.2
Manganese, Total, ICAP/MS	ug/l	50	S	14	12	ND	ND	41	38	**84**	**78**	**110**	**100**	**550**	**560**
Turbidity	NTU	5	S	0.05	0.05	0.15	0.15	1.3	3.1	0.15	0.15	0.2	0.3	1.2	1.2
Alkalinity	mg/l			155	153	177	169	162	161	185	182	184	180	346	337
Boron	mg/l			0.066	0.069	0.13	0.13	0.074	0.065	0.086	0.081	0.092	0.081	0.12	0.11
Bicarbonate as HCO3,calculated	mg/l			190	190	220	210	200	200	230	220	220	220	420	410
Calcium, Total, ICAP	mg/l			42	42	96	94	44	44	52	51	52	52	180	190
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			130	130	320	310	130	130	170	160	160	160	610	630
Chloride	mg/l	500	S	5.4	5.9	74	74	5.1	5.2	5.7	6.1	5.7	6	130	130
Fluoride	mg/l	2	P	0.28	0.27	0.39	0.33	0.31	0.28	0.45	0.39	0.35	0.33	0.37	0.34
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.5	0.6	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.9	1
Magnesium, Total, ICAP	mg/l			5.5	5.5	19	18	6.1	6	8.6	8.6	7.4	7.3	38	38
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	3.4	3.4	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.6	2.7	4.1	4	2.5	2.4	2.7	2.6	2.8	2.7	4.4	4.5
Sodium, Total, ICAP	mg/l			24	23	42	42	23	23	21	21	22	21	57	55
Sulfate	mg/l	500	S	19	20	120	120	16	17	17	17	16	16	220	220
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	3.4	3.4	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			ND	ND	0.5	0.38	ND	ND	ND	ND	ND	ND	1.4	1.3
Carbon Dioxide	mg/l			3.1	2.5	4.5	5.5	2.6	2.6	3.8	3.6	3.6	3.6	22	17
General Physical Properties															
Apparent Color	ACU	15	S	ND	3	ND	ND	ND	3	ND	3	5	3	5	5
Lab pH	Units			8	8.1	7.9	7.8	8.1	8.1	8	8	8	8	7.5	7.6
Odor	TON	3	S	**3**	2	2	1	**3**	**4**	2	**3**	**3**	**3**	**3**	1
pH of CaCO3 saturation(25C)	Units			7.5	7.5	7.1	7.1	7.5	7.5	7.4	7.4	7.4	7.4	6.6	6.6
pH of CaCO3 saturation(60C)	Units			7.1	7.1	6.7	6.7	7.1	7.1	6.9	6.9	6.9	6.9	6.1	6.1
Specific Conductance	umho/cm	1600	S	350	350	775	816	350	356	400	403	390	398	1200	1370
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	2.7	2.5	2.2	2	3.7	3.1	**10**	9	**21**	**18**	5	4.8
Barium, Total, ICAP/MS	ug/l	1000	P	97	100	160	170	110	120	160	170	160	200	93	110
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 3 of 25

Water Quality Constituents	Units	MCL	MCL Type	Commerce #1 Zone 2 05/09/07	Commerce #1 Zone 2 09/24/07	Commerce #1 Zone 3 05/09/07	Commerce #1 Zone 3 09/24/07	Commerce #1 Zone 4 05/09/07	Commerce #1 Zone 4 09/24/07	Commerce #1 Zone 5 05/09/07	Commerce #1 Zone 5 09/24/07	Commerce #1 Zone 6 05/09/07	Commerce #1 Zone 6 09/24/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	610	668	430	478	476	484	352	476	402	386
Cation Sum	meq/l			12	12	8.3	8.3	9	8.3	8.5	8.1	6.6	6.7
Anion Sum	meq/l			12	11	8.1	7.8	8.7	8.7	8.9	8	7	6.8
Iron, Total, ICAP	mg/l	0.30	S	ND	0.021	0.1	0.095	0.065	0.065	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	12	49	46	**72**	**65**	ND	5.5	ND	ND
Turbidity	NTU	5	S	0.85	0.9	0.2	0.25	0.35	0.3	0.6	0.5	1.6	1.5
Alkalinity	mg/l			316	261	227	182	204	195	213	177	194	180
Boron	mg/l			0.44	0.52	0.2	0.22	0.23	0.24	0.14	0.15	0.13	0.13
Bicarbonate as HCO3,calculated	mg/l			380	320	280	220	250	240	260	220	240	220
Calcium, Total, ICAP	mg/l			57	58	65	62	50	48	81	78	59	60
Carbonate as CO3, Calculated	mg/l			6.2	2.1	4.6	ND	4.1	2	2.1	ND	2	ND
Hardness (Total, as CaCO3)	mg/l			250	260	250	240	210	200	300	290	230	230
Chloride	mg/l	500	S	190	210	91	110	115	120	79	75	61	63
Fluoride	mg/l	2	P	0.4	0.39	0.42	0.4	0.48	0.45	0.41	0.4	0.52	0.49
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			1.3	0.8	1.2	0.7	1.1	0.7	1	0.7	0.8	0.6
Magnesium, Total, ICAP	mg/l			27	27	21	21	20	20	24	23	19	20
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	4.2	4.4	6.4	6.5
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			5.8	6	3.3	3.2	3.3	3.2	2.4	2.4	1.8	1.8
Sodium, Total, ICAP	mg/l			150	160	74	78	110	97	56	52	47	46
Sulfate	mg/l	500	S	2.1	ND	49	48	65	67	99	95	46	47
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	4.2	4.4	6.4	6.5
Total Organic Carbon	mg/l			3.8	3.9	1	1	0.8	0.7	0.3	0.3	ND	ND
Carbon Dioxide	mg/l			2.5	5.2	ND	3.6	ND	3.1	3.4	4.5	3.1	4.5
General Physical Properties													
Apparent Color	ACU	15	S	**20**	**20**	3	5	5	5	ND	ND	ND	ND
Lab pH	Units			8.4	8	8.4	8	8.4	8.1	8.1	7.9	8.1	7.9
Odor	TON	3	S	**200**	**100**	**67**	2	**8**	2	**3**	1	**3**	1
pH of CaCO3 saturation(25C)	Units			7.1	7.2	7.2	7.3	7.3	7.4	7.1	7.2	7.3	7.3
pH of CaCO3 saturation(60C)	Units			6.7	6.7	6.7	6.9	6.9	6.9	6.7	6.8	6.9	6.9
Specific Conductance	umho/cm	1600	S	1200	1200	810	840	890	854	830	736	670	628
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	99	94	98	100	250	250	94	95	58	60
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	5.3	5.4	10	10
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	1.2	2.2	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	0.5	0.8	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 4 of 25

Water Quality Constituents	Units	MCL	MCL Type	Compton #1 Zone 1 04/24/07	Compton #1 Zone 1 09/05/07	Compton #1 Zone 2 04/24/07	Compton #1 Zone 2 09/05/07	Compton #1 Zone 3 04/24/07	Compton #1 Zone 3 09/05/07	Compton #1 Zone 4 04/24/07	Compton #1 Zone 4 09/05/07	Compton #1 Zone 5 04/24/07	Compton #1 Zone 5 09/05/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	184	234	222	300	276	298	304	350	290	340
Cation Sum	meq/l			1.9	3.9	4.7	4.7	5.1	5.2	5.7	5.6	5.6	5.7
Anion Sum	meq/l			3.9	4.7	4.8	5.3	5.2	5.6	5.6	6	5.6	6.4
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	0.037	0.024	0.092	0.081	0.075	0.048
Manganese, Total, ICAP/MS	ug/l	50	S	13	ND	22	22	**60**	**60**	**83**	**89**	49	**53**
Turbidity	NTU	5	S	0.1	0.2	0.05	0.2	1.9	0.75	0.45	0.7	0.7	0.6
Alkalinity	mg/l			173	214	146	172	162	183	171	192	184	223
Boron	mg/l			0.083	0.11	0.11	0.07	0.13	0.081	0.099	0.065	0.13	0.096
Bicarbonate as HCO3,calculated	mg/l			210	260	180	210	200	220	210	230	220	270
Calcium, Total, ICAP	mg/l			10	21	40	41	49	51	62	63	58	60
Carbonate as CO3, Calculated	mg/l			4.3	4.2	2.3	2.7	2.6	ND	2.7	ND	2.3	ND
Hardness (Total, as CaCO3)	mg/l			29	60	110	120	160	170	180	190	190	200
Chloride	mg/l	500	S	14	13	22	22	25	24	22	21	20	20
Fluoride	mg/l	2	P	0.37	0.34	0.4	0.35	0.32	0.28	0.33	0.29	0.41	0.36
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.4	0.7	0.7	0.8	0.8	0.7	1	0.7	0.9	0.7
Magnesium, Total, ICAP	mg/l			0.86	1.8	3.5	3.6	9.1	9.6	6.5	6.8	10	11
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			ND	1.5	1.8	1.7	2.9	2.5	2.7	2.4	2.7	2.5
Sodium, Total, ICAP	mg/l			31	61	55	53	43	42	45	43	42	40
Sulfate	mg/l	500	S	ND	ND	58	58	60	59	75	74	66	65
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			3	3.2	0.8	0.84	0.8	0.64	ND	0.33	ND	0.35
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	2.9	ND	3.8	2.3	5.6
General Physical Properties													
Apparent Color	ACU	15	S	**30**	**25**	10	5	5	5	3	ND	3	ND
Lab pH	Units			8.5	8.4	8.3	8.3	8.3	8.1	8.3	8	8.2	7.9
Odor	TON	3	S	**17**	**3**	**40**	2	**40**	2	**40**	**3**	**4**	**3**
pH of CaCO3 saturation(25C)	Units			8.1	7.7	7.6	7.5	7.5	7.4	7.3	7.3	7.3	7.2
pH of CaCO3 saturation(60C)	Units			7.7	7.3	7.2	7.1	7	6.9	6.9	6.8	6.9	6.8
Specific Conductance	umho/cm	1600	S	360	368	460	470	490	506	520	536	520	543
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	**29**	**28**	**19**	**17**
Barium, Total, ICAP/MS	ug/l	1000	P	7.2	ND	14	15	56	65	150	170	100	120
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	2.1	ND	2.3	ND	ND	ND	2.1
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 5 of 25

Water Quality Constituents	Units	MCL	MCL Type	Compton #2 Zone 1 08/17/07	Compton #2 Zone 2 Not Sampled	Compton #2 Zone 3 08/17/07	Compton #2 Zone 4 08/17/07	Compton #2 Zone 5 08/17/07	Compton #2 Zone 6 Not Sampled
Major Minerals									
Total Dissolved Solid (TDS)	mg/l	1000	S	586		302	376	368	
Cation Sum	meq/l			10		5.1	6.4	6.1	
Anion Sum	meq/l			9.8		5	6.2	5.9	
Iron, Total, ICAP	mg/l	0.30	S	0.047		0.029	0.03	0.031	
Manganese, Total, ICAP/MS	ug/l	50	S	14		24	ND	**380**	
Turbidity	NTU	5	S	2.1		**14**	2.6	**17**	
Alkalinity	mg/l			471		167	194	187	
Boron	mg/l			0.64		0.089	0.11	0.13	
Bicarbonate as HCO3,calculated	mg/l			570		200	240	230	
Calcium, Total, ICAP	mg/l			12		41	61	53	
Carbonate as CO3, Calculated	mg/l			4.7		2.1	ND	ND	
Hardness (Total, as CaCO3)	mg/l			39		130	200	180	
Chloride	mg/l	500	S	13		18	26	22	
Fluoride	mg/l	2	P	0.42		0.26	0.29	0.36	
Hydroxide as OH, Calculated	mg/l			ND		ND	ND	ND	
Langelier Index - 25 degree	None			0.5		0.7	0.7	0.7	
Magnesium, Total, ICAP	mg/l			2.3		6	11	12	
Mercury	ug/l	2	P	ND		ND	ND	ND	
Nitrate-N by IC	mg/l	10	P	ND		ND	ND	ND	
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND		ND	ND	ND	
Potassium, Total, ICAP	mg/l			3		2.8	2.6	3.5	
Sodium, Total, ICAP	mg/l			220		57	54	55	
Sulfate	mg/l	500	S	ND		55	77	73	
Surfactants	mg/l	1	S	ND		ND	ND	ND	
Total Nitrate, Nitrite-N, CALC	mg/l			ND		ND	ND	ND	
Total Organic Carbon	mg/l			15		1.2	2.7	1.2	
Carbon Dioxide	mg/l			7.4		2.1	3.9	3	
General Physical Properties									
Apparent Color	ACU	15	S	**100**		5	**30**	10	
Lab pH	Units			8.1		8.2	8	8.1	
Odor	TON	3	S	**4**		2	2	1	
pH of CaCO3 saturation(25C)	Units			7.6		7.5	7.3	7.4	
pH of CaCO3 saturation(60C)	Units			7.2		7.1	6.8	6.9	
Specific Conductance	umho/cm	1600	S	919		487	600	580	
Metals									
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND		67	ND	680	
Antimony, Total, ICAP/MS	ug/l	6	P	ND		ND	ND	ND	
Arsenic, Total, ICAP/MS	ug/l	10	P	1.6		1.3	**25**	ND	
Barium, Total, ICAP/MS	ug/l	1000	P	13		27	**1019**	54	
Beryllium, Total, ICAP/MS	ug/l	4	P	ND		ND	ND	ND	
Chromium, Total, ICAP/MS	ug/l	50	P	ND		ND	ND	ND	
Cadmium, Total, ICAP/MS	ug/l	5	P	ND		ND	ND	ND	
Copper, Total, ICAP/MS	ug/l	1000	S	ND		ND	ND	ND	
Lead, Total, ICAP/MS	ug/l			ND		ND	ND	ND	
Nickel, Total, ICAP/MS	ug/l	100	P	ND		ND	ND	ND	
Selenium, Total, ICAP/MS	ug/l	50	P	ND		ND	ND	ND	
Silver, Total, ICAP/MS	ug/l	100	S	ND		ND	ND	ND	
Thallium, Total, ICAP/MS	ug/l	2	P	ND		ND	ND	ND	
Zinc, Total, ICAP/MS	ug/l	5000	S	ND		ND	ND	470	
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND		ND	ND	ND	
Tetrachloroethylene (PCE)	ug/l	5	P	ND		ND	ND	ND	
1,1-Dichloroethylene	ug/l	6	P	ND		ND	ND	ND	
cis-1,2-Dichloroethylene	ug/l	6	P	ND		ND	ND	ND	
trans-1,2-Dichloroethylene	ug/l	10	P	ND		ND	ND	ND	
Chloroform (Trichloromethane)	ug/l	100	P	ND		ND	ND	ND	
Carbon Tetrachloride	ug/l	1	P	ND		ND	ND	ND	
1,1-Dichloroethane	ug/l	5	P	ND		ND	ND	ND	
1,2-Dichloroethane	ug/l	1	P	ND		ND	ND	ND	
Fluorotrichloromethane-Freon11	ug/l	150	P	ND		ND	ND	ND	
Freon 113	ug/l			ND		ND	ND	ND	
Isopropylbenzene	ug/l			ND		ND	ND	ND	
n-Propylbenzene	ug/l			ND		ND	ND	ND	
m,p-Xylenes	ug/l	1750	P	ND		ND	ND	ND	
Methylene Chloride	ug/l	5	P	ND		ND	ND	ND	
Toluene	ug/l	150	P	ND		ND	ND	ND	
Dichlorodifluoromethane	ug/l	1000	S	ND		ND	ND	ND	
Benzene	ug/l	1	P	ND		ND	ND	ND	
Ethyl benzene	ug/l	700	P	ND		ND	ND	ND	
MTBE	ng/l	13	P	ND		ND	ND	ND	
TBA	ug/l			ND		ND	ND	ND	
Di-Isopropyl Ether	ug/l			ND		ND	ND	ND	
Tert Amyl Methyl Ether	ug/l			ND		ND	ND	ND	
Ethyl Tert Butyl Ether	ug/l			ND		ND	ND	ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 6 of 25

Water Quality Constituents	Units	MCL	MCL Type	Downey #1 Zone 1 05/10/07	Downey #1 Zone 1 09/19/07	Downey #1 Zone 2 05/10/07	Downey #1 Zone 2 09/19/07	Downey #1 Zone 3 05/10/07	Downey #1 Zone 3 09/19/07	Downey #1 Zone 4 05/10/07	Downey #1 Zone 4 09/19/07	Downey #1 Zone 5 05/10/07	Downey #1 Zone 5 09/19/07	Downey #1 Zone 6 05/10/07	Downey #1 Zone 6 09/19/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	200	212	384	392	472	484	536	580	400	404	918	952
Cation Sum	meq/l			3.7	3.8	6.7	6.4	8	8	9.2	9.3	7.2	6.8	16	16
Anion Sum	meq/l			3.6	3.5	6.5	6.3	8.2	6.5	9.3	7.6	7.3	6.8	16	15
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	ND	ND	ND	ND	ND	ND	ND	**120**	**110**	**66**	**69**
Turbidity	NTU	5	S	0.05	0.1	0.4	0.35	0.15	0.4	0.05	0.15	0.9	3.7	0.15	2.3
Alkalinity	mg/l			153	148	165	161	174	96	198	119	218	209	355	311
Boron	mg/l			0.062	0.053	0.069	0.055	0.088	0.081	0.21	0.19	0.089	0.088	0.22	0.22
Bicarbonate as HCO3,calculated	mg/l			190	180	200	200	210	120	240	140	260	250	430	380
Calcium, Total, ICAP	mg/l			41	42	84	82	100	100	97	99	90	86	180	180
Carbonate as CO3, Calculated	mg/l			3.9	ND	3.3	ND	2.7	ND	3.1	ND	2.7	ND	3.5	ND
Hardness (Total, as CaCO3)	mg/l			130	130	270	260	330	330	320	330	300	280	600	600
Chloride	mg/l	500	S	5.3	5.3	37	36	69	66	79	76	39	35	110	110
Fluoride	mg/l	2	P	0.33	0.35	0.29	0.33	0.36	0.37	0.4	0.43	0.39	0.44	0.32	0.34
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.9	0.5	1.2	0.8	1.2	0.5	1.2	0.5	1.1	0.8	1.5	1
Magnesium, Total, ICAP	mg/l			6	5.9	14	13	19	19	20	20	18	16	37	36
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	0.1	2	1.9	3.2	3.1	2	2	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.8	2.9	3.7	3.7	3.2	3.4	4.3	4.6	3.6	3.6	5.7	6
Sodium, Total, ICAP	mg/l			26	26	28	27	31	32	59	60	27	26	84	83
Sulfate	mg/l	500	S	18	18	94	92	120	120	140	140	86	77	260	270
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	0.1	2	1.9	3.2	3.1	2	2	ND	ND	ND	ND
Total Organic Carbon	mg/l			ND	ND	ND	0.3	0.3	0.3	0.57	0.7	0.31	ND	0.8	0.7
Carbon Dioxide	mg/l			ND	2.3	ND	3.3	ND	2.5	2	3.6	2.7	5.2	5.6	16
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3
Lab pH	Units			8.5	8.1	8.4	8	8.3	7.9	8.3	7.8	8.2	7.9	8.1	7.6
Odor	TON	3	S	2	1	**3**	1	1	1	1	1	1	2	1	1
pH of CaCO3 saturation(25C)	Units			7.6	7.6	7.2	7.2	7.1	7.4	7.1	7.3	7.1	7.1	6.6	6.6
pH of CaCO3 saturation(60C)	Units			7.1	7.1	6.8	6.8	6.7	6.9	6.6	6.8	6.6	6.7	6.1	6.2
Specific Conductance	umho/cm	1600	S	310	346	640	604	720	779	800	872	590	638	1200	1370
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	3.4	3	2.7	2.5	3.4	3.1	2.2	2	4.2	4.1	2.6	2.3
Barium, Total, ICAP/MS	ug/l	1000	P	95	97	160	180	140	150	94	95	240	250	70	77
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	5.7	3.4	4.1	2	3.4	1.3	3.5	ND	3.1	ND	5.8	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	1.1	0.8	0.6	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.6	0.6	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9	0.7
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 7 of 25

Water Quality Constituents	Units	MCL	MCL Type	Huntington Park #1 Zone 1 05/15/07	Huntington Park #1 Zone 1 09/26/07	Huntington Park #1 Zone 2 05/15/07	Huntington Park #1 Zone 2 09/26/07	Huntington Park #1 Zone 3 05/15/07	Huntington Park #1 Zone 3 09/26/07	Huntington Park #1 Zone 4 05/15/07	Huntington Park #1 Zone 4 09/26/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	314	370	322	352	500	508	600	712
Cation Sum	meq/l			6.1	6.2	6.2	6.2	9.5	8.6	11	12
Anion Sum	meq/l			6.1	5.7	6.1	5	9.2	6.8	11	8.3
Iron, Total, ICAP	mg/l	0.30	S	0.24	0.23	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**57**	**53**	ND	ND	ND	ND	ND	ND
Turbidity	NTU	5	S	1.8	1.2	0.25	0.25	0.15	0.1	0.2	0.2
Alkalinity	mg/l			182	159	186	129	233	131	284	115
Boron	mg/l			0.14	0.11	0.15	0.11	0.16	0.13	0.17	0.15
Bicarbonate as HCO3,calculated	mg/l			220	190	230	160	280	160	350	140
Calcium, Total, ICAP	mg/l			62	62	62	62	100	90	120	130
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	ND	2.3	ND	2.9	ND
Hardness (Total, as CaCO3)	mg/l			220	220	220	220	360	320	430	460
Chloride	mg/l	500	S	22	23	22	22	50	46	64	67
Fluoride	mg/l	2	P	0.48	0.5	0.42	0.43	0.33	0.35	0.35	0.35
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.3	0.8	0.5	1.1	0.6	1.3	0.6
Magnesium, Total, ICAP	mg/l			15	15	16	15	26	22	31	33
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	3.2	2.5	4.8	4.8
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.1	3.2	3.2	3.1	3.9	3.7	4.3	4.5
Sodium, Total, ICAP	mg/l			39	40	40	41	51	50	55	58
Sulfate	mg/l	500	S	88	90	84	85	140	130	170	180
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	3.2	2.5	4.8	4.8
Total Organic Carbon	mg/l			ND	ND	ND	ND	0.3	ND	0.33	0.4
Carbon Dioxide	mg/l			2.9	6.2	3	3.3	3.6	3.3	4.6	3.6
General Physical Properties											
Apparent Color	ACU	15	S	3	3	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.1	7.7	8.1	7.9	8.1	7.9	8.1	7.8
Odor	TON	3	S	**3**	2	**3**	1	**3**	2	**3**	1
pH of CaCO3 saturation(25C)	Units			7.3	7.4	7.3	7.4	7	7.3	6.8	7.2
pH of CaCO3 saturation(60C)	Units			6.9	6.9	6.9	7	6.5	6.8	6.4	6.7
Specific Conductance	umho/cm	1600	S	583	563	580	563	872	757	1050	1030
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	62	64	81	78	120	97	99	97
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	2.7	3.4	2.7	2.6
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	7.3	5.9
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	4.8	2.5	1	0.5
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	1.6	0.7	0.6	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	0.8	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	**1.6**	**1.3**	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 8 of 25

Water Quality Constituents	Units	MCL	MCL Type	Inglewood #2 Zone 1 05/10/07	Inglewood #2 Zone 1 08/23/07	Inglewood #2 Zone 2 05/10/07	Inglewood #2 Zone 2 08/23/07	Inglewood #2 Zone 3 05/22/07	Inglewood #2 Zone 3 08/23/07
Major Minerals									
Total Dissolved Solid (TDS)	mg/l	1000	S	**1580**	**1660**	**1440**	**1530**	248	310
Cation Sum	meq/l			28	28	25	26	5.5	5.2
Anion Sum	meq/l			30	30	27	27	5.5	5.6
Iron, Total, ICAP	mg/l	0.30	S	**0.6**	**0.55**	**0.54**	**0.39**	0.096	0.099
Manganese, Total, ICAP/MS	ug/l	50	S	30	26	30	27	35	34
Turbidity	NTU	5	S	1.1	4	**22**	**19**	0.35	0.9
Alkalinity	mg/l			1442	1430	1341	1330	249	251
Boron	mg/l			3.8	3.5	3.3	3.2	0.22	0.2
Bicarbonate as HCO3,calculated	mg/l			1700	1700	1600	1600	300	300
Calcium, Total, ICAP	mg/l			17	16	11	11	34	32
Carbonate as CO3, Calculated	mg/l			110	35	41	33	2.5	3.9
Hardness (Total, as CaCO3)	mg/l			110	110	66	65	140	130
Chloride	mg/l	500	S	34	31	21	19	19	19
Fluoride	mg/l	2	P	0.61	0.55	0.32	0.32	0.24	0.25
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			2	1.5	1.4	1.3	0.7	0.8
Magnesium, Total, ICAP	mg/l			17	16	9.4	9	13	12
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			25	24	18	18	6.5	6.1
Sodium, Total, ICAP	mg/l			570	580	540	550	59	56
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND
Surfactants	mg/l	1	S	ND	0.068	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			33	38	24	24	19	1.1
Carbon Dioxide	mg/l			2.8	8.8	6.6	8.3	3.9	2.5
General Physical Properties									
Apparent Color	ACU	15	S	**300**	**300**	**200**	**250**	10	10
Lab pH	Units			9	8.5	8.6	8.5	8.1	8.3
Odor	TON	3	S	**200**	**16**	**17**	**8**	**8**	**4**
pH of CaCO3 saturation(25C)	Units			7	7	7.2	7.2	7.4	7.5
pH of CaCO3 saturation(60C)	Units			6.5	6.6	6.7	6.7	7	7
Specific Conductance	umho/cm	1600	S	**2400**	**2550**	**2400**	**2370**	506	530
Metals									
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	38	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	1.8	1.8	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	40	42	23	26	15	16
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.9	1.9	5.1	2.3	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	0.8	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	4.1
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 9 of 25

Water Quality Constituents	Units	MCL	MCL Type	La Mirada #1 Zone 1 04/30/07	La Mirada #1 Zone 1 09/17/07	La Mirada #1 Zone 2 04/30/07	La Mirada #1 Zone 2 09/17/07	La Mirada #1 Zone 3 04/30/07	La Mirada #1 Zone 3 09/17/07	La Mirada #1 Zone 4 04/30/07	La Mirada #1 Zone 4 09/17/07	La Mirada #1 Zone 5 04/30/07	La Mirada #1 Zone 5 09/17/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	360	338	200	240	330	314	382	408	562	748
Cation Sum	meq/l			5.9	5.4	4.2	4.1	5.5	5.2	6.8	6.8	9.1	12
Anion Sum	meq/l			6.1	6	4.5	4.3	5.6	5.6	6.9	7.3	9.5	13
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	10	11	4.9	4.9	17	17	24	16	30	2.3
Turbidity	NTU	5	S	0.1	0.15	ND	0.1	0.3	0.2	0.5	0.3	0.2	0.2
Alkalinity	mg/l			164	164	148	141	196	197	203	218	198	181
Boron	mg/l			0.15	0.15	0.11	0.11	0.15	0.15	0.13	0.13	0.15	0.15
Bicarbonate as HCO3,calculated	mg/l			200	200	180	170	240	240	250	270	240	220
Calcium, Total, ICAP	mg/l			16	15	9.5	9.3	22	21	48	45	67	97
Carbonate as CO3, Calculated	mg/l			4.1	2.6	3.7	2.2	3.9	2	4.1	ND	3.1	ND
Hardness (Total, as CaCO3)	mg/l			54	51	30	29	85	82	190	180	270	380
Chloride	mg/l	500	S	27	26	15	15	16	15	37	35	110	220
Fluoride	mg/l	2	P	0.91	0.86	0.64	0.61	0.86	0.78	0.62	0.61	0.51	0.32
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.6	0.3	0.3	0.1	0.7	0.4	1	0.5	1.1	0.5
Magnesium, Total, ICAP	mg/l			3.5	3.3	1.5	1.5	7.3	7.1	18	17	24	33
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.1	ND	5.1	**12**
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2	2.1	1.6	1.6	2.4	2.4	2.7	2.7	3	3.7
Sodium, Total, ICAP	mg/l			110	100	83	79	87	80	65	70	85	100
Sulfate	mg/l	500	S	98	95	50	49	58	57	85	92	100	91
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	0.1	ND	5.1	12
Total Organic Carbon	mg/l			0.3	ND	ND	ND	0.5	0.41	ND	ND	ND	0.33
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	3.1	ND	5.6	2	9.1
General Physical Properties													
Apparent Color	ACU	15	S	ND	3	ND	ND	5	5	ND	ND	ND	ND
Lab pH	Units			8.5	8.3	8.5	8.3	8.4	8.1	8.4	7.9	8.3	7.6
Odor	TON	3	S	**3**	1	1	2	**3**	2	**3**	1	1	2
pH of CaCO3 saturation(25C)	Units			7.9	8	8.2	8.2	7.7	7.7	7.4	7.4	7.2	7.1
pH of CaCO3 saturation(60C)	Units			7.5	7.5	7.8	7.8	7.3	7.3	6.9	6.9	6.8	6.7
Specific Conductance	umho/cm	1600	S	590	592	460	436	530	528	650	663	910	1280
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	6.6	6.4	7.9	7.7	6.8	6.8	2.9	4.2	1.4	ND
Barium, Total, ICAP/MS	ug/l	1000	P	57	60	22	24	40	42	42	44	55	91
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	2.6	ND	2
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	7.2	13
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 10 of 25

Water Quality Constituents	Units	MCL	MCL Type	Lakewood #1 Zone 1 05/01/07	Lakewood #1 Zone 1 09/17/07	Lakewood #1 Zone 2 05/01/07	Lakewood #1 Zone 2 09/17/07	Lakewood #1 Zone 3 05/01/07	Lakewood #1 Zone 3 09/17/07	Lakewood #1 Zone 4 05/01/07	Lakewood #1 Zone 4 09/17/07	Lakewood #1 Zone 5 05/01/07	Lakewood #1 Zone 5 09/17/07	Lakewood #1 Zone 6 05/01/07	Lakewood #1 Zone 6 09/17/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	194	174	234	202	192	218	274	256	234	228	460	400
Cation Sum	meq/l			2.7	2.8	3.3	3.3	2.9	3.7	4.5	4.4	4.2	4.1	7.5	6.7
Anion Sum	meq/l			3	2.8	3.7	3.3	2.9	3.8	4.9	4.5	4.5	4.1	8.1	6.9
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND	0.066	0.062	0.096	0.087	0.1	0.074
Manganese, Total, ICAP/MS	ug/l	50	S	2.6	ND	16	16	17	22	**86**	**82**	**50**	**50**	**260**	**220**
Turbidity	NTU	5	S	0.1	0.2	0.55	0.25	0.85	1.2	0.2	0.65	0.6	0.2	0.5	0.4
Alkalinity	mg/l			103	94	150	136	121	156	176	166	196	177	230	201
Boron	mg/l			0.057	0.061	ND	ND	0.064	0.07	0.077	0.073	0.089	0.091	0.087	0.098
Bicarbonate as HCO3,calculated	mg/l			120	110	180	170	150	190	210	200	240	220	280	240
Calcium, Total, ICAP	mg/l			9.8	10	31	31	26	39	47	46	46	46	97	86
Carbonate as CO3, Calculated	mg/l			3.9	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			26	26	93	93	79	120	140	140	150	150	280	250
Chloride	mg/l	500	S	19	20	15	6.4	6.1	10	38	32	9.7	10	88	69
Fluoride	mg/l	2	P	0.5	0.46	0.28	0.26	0.45	0.31	0.34	0.32	0.54	0.52	0.21	0.24
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.3	0.3	0.5	0.5	0.3	0.5	0.6	0.5	0.6	0.6	0.7	0.6
Magnesium, Total, ICAP	mg/l			0.34	0.36	3.8	3.8	3.3	4.9	6.1	6.2	8.6	8.7	9.9	9
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			ND	ND	2	2	1.9	2.3	2.7	2.6	2.5	2.6	3.8	3.6
Sodium, Total, ICAP	mg/l			51	52	32	31	30	29	37	36	25	24	41	36
Sulfate	mg/l	500	S	16	15	13	17	16	18	14	14	13	14	46	44
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.074	0.105
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			0.8	0.98	0.7	ND	0.3	ND	0.5	0.45	0.4	1.1	0.7	0.64
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	2.5	2.7	3.3	3.9	3.6	9.2	7.9
General Physical Properties															
Apparent Color	ACU	15	S	10	10	3	3	10	ND	5	3	3	3	3	3
Lab pH	Units			8.7	8.7	8.2	8.2	8.2	8.1	8.1	8	8	8	7.7	7.7
Odor	TON	3	S	**8**	**4**	**17**	**3**	**67**	**4**	**8**	**4**	**17**	**3**	**4**	2
pH of CaCO3 saturation(25C)	Units			8.4	8.4	7.7	7.7	7.9	7.6	7.5	7.5	7.4	7.4	7	7.1
pH of CaCO3 saturation(60C)	Units			7.9	8	7.2	7.3	7.4	7.1	7	7	7	7	6.6	6.7
Specific Conductance	umho/cm	1600	S	278	288	315	321	287	359	446	447	385	397	738	671
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	**12**	1.1	1.7	1.8	1.1	1.2	**16**	7	3.9	3.6	**24**	**26**
Barium, Total, ICAP/MS	ug/l	1000	P	15	17	21	23	21	31	130	140	100	110	260	250
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 11 of 25

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #1 Zone 1 04/26/07	Long Beach #1 Zone 1 09/14/07	Long Beach #1 Zone 2 04/26/07	Long Beach #1 Zone 2 09/14/07	Long Beach #1 Zone 3 04/26/07	Long Beach #1 Zone 3 09/14/07	Long Beach #1 Zone 4 04/26/07	Long Beach #1 Zone 4 09/14/07	Long Beach #1 Zone 5 04/26/07	Long Beach #1 Zone 5 09/14/07	Long Beach #1 Zone 6 04/26/07	Long Beach #1 Zone 6 09/14/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	214	216	220	196	186	190	226	214	**1000**	970	**1000**	**1330**
Cation Sum	meq/l			3.7	3.3	3.4	3.5	2.9	3.1	3.7	3.7	17	15	17	15
Anion Sum	meq/l			3.7	3.5	3.6	3.4	3.1	3.1	3.8	3.8	17	16	16	16
Iron, Total, ICAP	mg/l	0.30	S	0.023	ND	ND	ND	ND	0.042	ND	0.029	0.042	0.035	0.16	0.13
Manganese, Total, ICAP/MS	ug/l	50	S	2.3	2.7	ND	3.2	3.5	3.7	19	24	**110**	**100**	**380**	**370**
Turbidity	NTU	5	S	0.2	0.45	0.2	0.3	0.6	0.9	0.45	0.7	0.9	3.6	0.75	0.7
Alkalinity	mg/l			163	154	156	150	123	120	141	140	151	144	226	230
Boron	mg/l			0.2	0.19	0.19	0.23	0.089	0.099	0.078	0.065	0.1	0.1	0.096	0.1
Bicarbonate as HCO3,calculated	mg/l			190	180	190	180	150	140	170	170	180	180	280	280
Calcium, Total, ICAP	mg/l			2.5	2.2	2.5	2.4	5.3	5.1	19	21	98	89	200	170
Carbonate as CO3, Calculated	mg/l			9.8	9.3	9.8	9.3	6.2	5.7	2.8	2.2	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			7.2	6.4	6.8	6.6	15	14	55	61	310	280	640	550
Chloride	mg/l	500	S	16	15	15	14	12	12	12	12	290	270	200	180
Fluoride	mg/l	2	P	0.73	0.73	0.71	0.7	0.72	0.72	0.46	0.41	0.21	0.21	0.29	0.27
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.1	0.1	0.1	0.1	0.3	0.2	0.5	0.4	0.7	0.8	1.1	1
Magnesium, Total, ICAP	mg/l			0.23	0.21	0.13	0.14	0.31	0.3	1.9	2.1	15	14	34	30
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			ND	ND	ND	ND	ND	ND	1.3	1.3	3.9	3.6	4.1	3.8
Sodium, Total, ICAP	mg/l			81	73	74	78	61	65	58	56	240	220	91	91
Sulfate	mg/l	500	S	ND	ND	ND	ND	14	14	30	32	260	260	300	280
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			3.5	3.1	3.4	3	1.8	1.6	1.3	0.48	1.4	1.3	1.1	1.3
Carbon Dioxide	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	3.7	3	7.3	7.3
General Physical Properties															
Apparent Color	ACU	15	S	**60**	**80**	**60**	**60**	**55**	**30**	**15**	5	3	5	5	3
Lab pH	Units			8.9	8.9	8.9	8.9	8.8	8.8	8.4	8.3	7.9	8	7.8	7.8
Odor	TON	3	S	**40**	**3**	**4**	**4**	**8**	**4**	**17**	2	**67**	**3**	**40**	2
pH of CaCO3 saturation(25C)	Units			8.8	8.8	8.8	8.8	8.5	8.6	7.9	7.9	7.2	7.2	6.7	6.8
pH of CaCO3 saturation(60C)	Units			8.3	8.4	8.3	8.4	8.1	8.1	7.5	7.4	6.7	6.8	6.3	6.3
Specific Conductance	umho/cm	1600	S	370	349	350	342	320	306	380	365	**1800**	**1610**	**1600**	1480
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	41	32	31	26	22	30	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	1.6	2.8	9.1	8.9
Barium, Total, ICAP/MS	ug/l	1000	P	ND	3.3	ND	6.3	ND	2.6	6.8	7.8	76	75	250	250
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	1	ND	1	ND	1.2	ND	1.4	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.3
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 12 of 25

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #2 Zone 1 05/01/07	Long Beach #2 Zone 1 09/06/07	Long Beach #2 Zone 2 05/01/07	Long Beach #2 Zone 2 09/06/07	Long Beach #2 Zone 3 05/01/07	Long Beach #2 Zone 3 09/06/07	Long Beach #2 Zone 4 05/01/07	Long Beach #2 Zone 4 09/06/07	Long Beach #2 Zone 5 05/01/07	Long Beach #2 Zone 5 09/06/07	Long Beach #2 Zone 6 05/01/07	Long Beach #2 Zone 6 09/06/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	430	398	330	244	270	218	302	284	950	**1020**	**1170**	**1190**
Cation Sum	meq/l			7.1	7.7	4.6	4.3	4	3.7	4.8	4.8	15	16	19	18
Anion Sum	meq/l			7.5	6.9	4.9	4.6	4.2	3.9	5.1	4.9	16	17	20	19
Iron, Total, ICAP	mg/l	0.30	S	0.12	0.2	0.027	0.021	ND	ND	ND	ND	0.17	0.18	0.18	0.18
Manganese, Total, ICAP/MS	ug/l	50	S	15	19	20	ND	ND	ND	34	33	**150**	**175**	**300**	**320**
Turbidity	NTU	5	S	1.7	1	0.2	0.25	0.25	0.15	0.95	1.8	1	1.3	1.5	1.5
Alkalinity	mg/l			342	312	215	200	152	139	160	146	321	317	322	302
Boron	mg/l			0.53	0.54	0.21	0.19	0.15	0.14	0.1	0.095	0.28	0.27	0.35	0.34
Bicarbonate as HCO3,calculated	mg/l			410	380	260	240	180	168	190	177	390	390	390	370
Calcium, Total, ICAP	mg/l			7.4	8.2	15	14	13	13	39	39	170	180	200	200
Carbonate as CO3, Calculated	mg/l			8.4	3.1	3.4	2.5	3.7	3.5	2.5	ND	2	ND	2	ND
Hardness (Total, as CaCO3)	mg/l			25	27	45	42	38	37	120	120	530	560	640	630
Chloride	mg/l	500	S	21	22	20	20	22.4	22	33	34	110	120	170	170
Fluoride	mg/l	2	P	0.66	0.68	0.45	0.45	0.55	0.58	0.33	0.34	0.16	0.18	0.33	0.34
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.5	0.1	0.4	0.3	0.4	0.4	0.7	0.6	1.3	1.2	1.3	1
Magnesium, Total, ICAP	mg/l			1.6	1.6	1.8	1.6	1.3	1.2	4.6	4.4	25	26	33	32
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.5	2.9	1.8	1.6	1.3	1.2	2.6	2.4	4.8	4.7	6	5.6
Sodium, Total, ICAP	mg/l			150	164	85	79	73	68	56	55	110	110	130	130
Sulfate	mg/l	500	S	ND	ND	ND	ND	22	22	47	49	310	340	397	390
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	0.072	0.062	0.056	0.074	0.099	0.078
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			9.9	14	3.5	3.9	1.6	1.5	2.4	1.2	1.2	1.3	1.5	1.5
Carbon Dioxide	mg/l			2.1	5	2.1	2.5	ND	ND	ND	ND	8.1	10	8.1	15
General Physical Properties															
Apparent Color	ACU	15	S	**100**	**400**	**55**	**35**	**20**	**20**	5	5	5	3	5	3
Lab pH	Units			8.5	8.1	8.3	8.2	8.5	8.5	8.3	8.2	7.9	7.8	7.9	7.6
Odor	TON	3	S	**67**	**4**	**17**	2	**17**	**4**	**17**	**3**	**4**	1	**40**	**4**
pH of CaCO3 saturation(25C)	Units			8	8	7.9	7.9	8.1	8.1	7.6	7.6	6.6	6.6	6.6	6.6
pH of CaCO3 saturation(60C)	Units			7.5	7.5	7.4	7.5	7.6	7.7	7.1	7.2	6.2	6.2	6.1	6.1
Specific Conductance	umho/cm	1600	S	637	649	435	427	388	394	460	496	1380	1520	**1660**	**1680**
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	1.3	ND	5	4.6	7.1	6.3
Barium, Total, ICAP/MS	ug/l	1000	P	5.3	8.3	10	ND	ND	ND	25	27	82	88	81	85
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		13		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 13 of 25

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #6 Zone 1 04/19/07	Long Beach #6 Zone 1 09/25/07	Long Beach #6 Zone 2 04/19/07	Long Beach #6 Zone 2 09/25/07	Long Beach #6 Zone 3 04/19/07	Long Beach #6 Zone 3 09/25/07	Long Beach #6 Zone 4 04/19/07	Long Beach #6 Zone 4 09/25/07	Long Beach #6 Zone 5 04/19/07	Long Beach #6 Zone 5 09/25/07	Long Beach #6 Zone 6 04/19/07	Long Beach #6 Zone 6 09/25/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	650	684	480	608	222	224	216	246	174	196	220	250
Cation Sum	meq/l			11	12	8.7	11	3.6	3.8	4	4	3.1	3.2	4	4.2
Anion Sum	meq/l			12	12	8.7	11	3.8	4.4	4.6	4.2	3.2	3.5	4.1	4.7
Iron, Total, ICAP	mg/l	0.30	S	ND	0.08	0.072	0.088	0.023	0.026	0.036	0.03	ND	ND	0.096	0.11
Manganese, Total, ICAP/MS	ug/l	50	S	18	16	21	21	5.3	5.3	26	20	11	8.1	**89**	**110**
Turbidity	NTU	5	S	2.1	2.4	0.3	0.7	0.4	0.4	0.3	0.35	0.15	0.35	0.15	0.2
Alkalinity	mg/l			554	548	406	527	163	195	175	182	120	136	133	163
Boron	mg/l			1.2	1.1	0.8	0.94	0.25	0.26	0.25	0.22	0.086	0.11	0.051	0.062
Bicarbonate as HCO3,calculated	mg/l			670	660	490	640	200	230	210	220	140	160	160	200
Calcium, Total, ICAP	mg/l			8.4	8.5	6.8	8.5	4.7	4.8	6	6.4	13	13	39	40
Carbonate as CO3, Calculated	mg/l			17	14	13	13	8.2	9.4	8.6	9	3.6	3.3	ND	ND
Hardness (Total, as CaCO3)	mg/l			28	29	22	27	13	13	17	18	36	36	120	120
Chloride	mg/l	500	S	19	19	19	19	17	17	36	18	19	18	41	40
Fluoride	mg/l	2	P	0.71	0.72	0.7	0.67	0.64	0.62	0.66	0.66	0.56	0.56	0.2	0.17
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.9	0.8	0.7	0.8	0.3	0.4	0.5	0.5	0.4	0.4	0.6	0.5
Magnesium, Total, ICAP	mg/l			1.7	1.8	1.2	1.5	0.27	0.27	0.43	0.42	0.92	0.93	4.9	5.2
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			ND	1.7	1.5	1.7	ND	ND	ND	ND	1.1	1.1	2.1	2.3
Sodium, Total, ICAP	mg/l			250	260	190	240	78	82	84	83	55	56	37	39
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	ND	2.5	12	12	15	15
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			19	19.2	14	4.1	3.7	3.8	8.2	4.1	1.9	1.7	0.67	0.4
Carbon Dioxide	mg/l			2.8	3.4	2	3.3	ND	ND	ND	ND	ND	ND	ND	3.3
General Physical Properties															
Apparent Color	ACU	15	S	**250**	**300**	**200**	**200**	**75**	**125**	**125**	**125**	**35**	**25**	5	3
Lab pH	Units			8.6	8.5	8.6	8.5	8.8	8.8	8.8	8.8	8.6	8.5	8.2	8
Odor	TON	3	S	**17**	**4**	**17**	**8**	**17**	2	**4**	**3**	**17**	**3**	**17**	**4**
pH of CaCO3 saturation(25C)	Units			7.7	7.7	7.9	7.7	8.5	8.4	8.3	8.3	8.2	8.1	7.6	7.5
pH of CaCO3 saturation(60C)	Units			7.2	7.2	7.5	7.3	8	8	7.9	7.9	7.7	7.7	7.2	7.1
Specific Conductance	umho/cm	1600	S	990	1000	750	924	350	348	370	360	290	306	420	398
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	25	ND	26	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	3	3	ND	ND	ND	ND	ND	ND	ND	ND	3.2	3.8
Barium, Total, ICAP/MS	ug/l	1000	P	6.8	7.4	8.5	11	3.3	ND	7.8	9.1	5.2	4.6	14	15
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 14 of 25

Water Quality Constituents	Units	MCL	MCL Type	Los Angeles #1 Zone 1 05/22/07	Los Angeles #1 Zone 1 09/26/07	Los Angeles #1 Zone 2 05/22/07	Los Angeles #1 Zone 2 09/26/07	Los Angeles #1 Zone 3 05/22/07	Los Angeles #1 Zone 3 09/26/07	Los Angeles #1 Zone 4 05/22/07	Los Angeles #1 Zone 4 09/26/07	Los Angeles #1 Zone 5 05/22/07	Los Angeles #1 Zone 5 09/26/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	274	348	290	364	300	360	454	598	606	648
Cation Sum	meq/l			5.9	5.8	6.3	6.3	6.5	6.3	9	9.8	11	11
Anion Sum	meq/l			5.7	5.7	6.1	6.8	6.2	6.8	9.1	8.5	12	8.7
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	0.21	0.18	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	45	42	**58**	**59**	15	14	ND	ND	ND	ND
Turbidity	NTU	5	S	0.05	0.15	0.95	0.85	0.1	0.15	0.2	0.45	0.1	0.3
Alkalinity	mg/l			185	175	189	219	191	215	217	155	234	121
Boron	mg/l			0.16	0.12	0.16	0.11	0.18	0.13	0.18	0.16	0.2	0.16
Bicarbonate as HCO3,calculated	mg/l			220	210	230	270	230	260	260	190	290	150
Calcium, Total, ICAP	mg/l			56	56	63	62	64	62	94	100	120	120
Carbonate as CO3, Calculated	mg/l			2.3	4.3	ND	5.5	ND	5.3	ND	3.9	ND	ND
Hardness (Total, as CaCO3)	mg/l			190	190	220	220	230	220	330	360	430	430
Chloride	mg/l	500	S	20	22	21	22	21	23	57	69	83	84
Fluoride	mg/l	2	P	0.3	0.28	0.43	0.42	0.39	0.39	0.42	0.41	0.41	0.39
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	1.1	0.7	1.3	0.7	1.3	0.8	1.3	0.9	0.4
Magnesium, Total, ICAP	mg/l			13	12	16	16	17	16	24	27	31	31
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	6.6	9.8	**13**	**14**
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			4	3.8	3.6	3.6	3.5	3.3	4.1	4.3	4.5	4.6
Sodium, Total, ICAP	mg/l			44	45	41	41	41	41	50	56	57	60
Sulfate	mg/l	500	S	70	73	84	84	83	86	130	130	170	141
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	0.085	0.072	0.11
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	6.6	9.8	13	14
Total Organic Carbon	mg/l			16	0.4	15	ND	14	ND	16	0.4	17	0.5
Carbon Dioxide	mg/l			2.3	ND	3.8	ND	3.8	ND	5.4	ND	7.5	6.2
General Physical Properties													
Apparent Color	ACU	15	S	3	ND	ND	ND	ND	ND	5	10	10	10
Lab pH	Units			8.2	8.5	8	8.5	8	8.5	7.9	8.5	7.8	7.6
Odor	TON	3	S	**3**	**3**	**3**	2	2	1	2	1	1	2
pH of CaCO3 saturation(25C)	Units			7.4	7.4	7.3	7.2	7.3	7.2	7.1	7.2	6.9	7.2
pH of CaCO3 saturation(60C)	Units			6.9	6.9	6.8	6.8	6.8	6.8	6.6	6.7	6.5	6.8
Specific Conductance	umho/cm	1600	S	537	517	570	544	572	555	824	887	1010	987
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	29	29	49	49	68	70	120	140	160	170
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	**160**	**340**	**610**	**620**
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	**25**	**34**	**41**	**47**
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	1.2	1.6	1.7	2.3
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	**0.6**	**0.6**
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	**0.5**	**0.6**
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 15 of 25

Water Quality Constituents	Units	MCL	MCL Type	Montebello #1 Zone 1 05/11/07	Montebello #1 Zone 1 09/19/07	Montebello #1 Zone 2 05/11/07	Montebello #1 Zone 2 09/19/07	Montebello #1 Zone 3 05/11/07	Montebello #1 Zone 3 09/19/07	Montebello #1 Zone 4 05/11/07	Montebello #1 Zone 4 09/19/07	Montebello #1 Zone 5 05/11/07	Montebello #1 Zone 5 09/19/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	**2100**	**2140**	908	874	568	642	554	560	504	502
Cation Sum	meq/l			34	35	15	16	9.6	11	9.1	8.9	8.5	8.2
Anion Sum	meq/l			37	39	15	17	9.3	11	9.1	8.4	8.3	7.7
Iron, Total, ICAP	mg/l	0.30	S	0.15	0.15	0.2	0.19	0.1	0.091	0.086	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	8.4	ND	31	32	**130**	**120**	**73**	**56**	ND	ND
Turbidity	NTU	5	S	1.6	1	3.8	0.25	2.7	**5.6**	1.5	0.6	1.7	0.4
Alkalinity	mg/l			921	1010	586	656	206	262	196	171	179	151
Boron	mg/l			6.2	6.3	2.2	2.2	0.32	0.63	0.11	0.19	0.21	0.21
Bicarbonate as HCO3,calculated	mg/l			1100	1200	710	800	250	320	240	210	220	180
Calcium, Total, ICAP	mg/l			13	13	17	18	98	88	110	100	83	80
Carbonate as CO3, Calculated	mg/l			18	9.8	9.2	6.5	2	ND	2	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			57	58	73	76	310	280	350	320	280	270
Chloride	mg/l	500	S	**650**	**650**	120	130	79	100	71	73	78	75
Fluoride	mg/l	2	P	0.47	0.52	0.32	0.38	0.16	0.21	0.17	0.25	0.38	0.52
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			1.1	0.8	0.9	0.8	1	0.9	1.1	0.7	0.8	0.3
Magnesium, Total, ICAP	mg/l			6	6.2	7.3	7.6	17	15	19	17	17	16
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	2.9	2.8
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			7.7	8.4	5.3	5.7	3.7	4	3.6	3.9	3.2	3.4
Sodium, Total, ICAP	mg/l			760	780	300	328	74	120	45	56	65	65
Sulfate	mg/l	500	S	ND	ND	ND	ND	140	130	150	140	110	110
Surfactants	mg/l	1	S	ND	0.066	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	2.9	2.8
Total Organic Carbon	mg/l			29	14	20.5	10	1.9	2.6	1.4	1.3	0.57	0.4
Carbon Dioxide	mg/l			7.2	16	5.8	10	3.3	6.6	3.1	5.5	3.6	7.4
General Physical Properties													
Apparent Color	ACU	15	S	**400**	**300**	**200**	**200**	10	**20**	5	5	ND	ND
Lab pH	Units			8.4	8.1	8.3	8.1	8.1	7.9	8.1	7.8	8	7.6
Odor	TON	3	S	**40**	**16**	**17**	**16**	**8**	**3**	**4**	1	**4**	2
pH of CaCO3 saturation(25C)	Units			7.3	7.3	7.4	7.3	7.1	7	7	7.1	7.2	7.3
pH of CaCO3 saturation(60C)	Units			6.8	6.8	6.9	6.8	6.6	6.6	6.6	6.7	6.7	6.8
Specific Conductance	umho/cm	1600	S	**3800**	**3460**	1500	1370	920	955	910	831	950	797
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	3.4	ND	ND	ND	ND	ND	ND	ND	1.4	ND
Barium, Total, ICAP/MS	ug/l	1000	P	34	37	21	23	40	43	93	89	60	60
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.4	3.2	ND	1.8	ND	1.1	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 16 of 25

Water Quality Constituents	Units	MCL	MCL Type	Norwalk #1 Zone 1 04/30/07	Norwalk #1 Zone 1 09/18/07	Norwalk #1 Zone 2 04/30/07	Norwalk #1 Zone 2 09/18/07	Norwalk #1 Zone 3 04/30/07	Norwalk #1 Zone 3 09/18/07	Norwalk #1 Zone 4 04/30/07	Norwalk #1 Zone 4 09/18/07	Norwalk #1 Zone 5 04/30/07	Norwalk #1 Zone 5 09/18/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	456	470	304	300	236	226	196	196	422	428
Cation Sum	meq/l			7.7	7.7	4.9	4.9	3.7	3.6	3.5	3.3	7.4	7.2
Anion Sum	meq/l			8	7.8	5.3	5.3	3.9	3.9	3.4	3.4	7.3	7.5
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND	0.031	0.02	0.091	0.065
Manganese, Total, ICAP/MS	ug/l	50	S	ND	ND	ND	5.8	17	ND	**51**	46	**140**	**130**
Turbidity	NTU	5	S	0.15	0.15	0.8	0.25	1.5	1.2	1.6	**7**	**32**	**88**
Alkalinity	mg/l			298	278	183	177	119	117	136	130	207	201
Boron	mg/l			0.41	0.38	0.21	0.22	ND	ND	0.051	0.091	0.085	0.086
Bicarbonate as HCO3,calculated	mg/l			360	340	220	210	140	140	160	160	250	240
Calcium, Total, ICAP	mg/l			12	12	9	8.8	23	22	27	26	67	66
Carbonate as CO3, Calculated	mg/l			5.9	ND	5.7	4.3	2.3	ND	2.6	ND	3.2	ND
Hardness (Total, as CaCO3)	mg/l			57	55	28	27	66	63	91	87	230	230
Chloride	mg/l	500	S	65	67	57	60	42	43	17	19	110	120
Fluoride	mg/l	2	P	0.55	0.53	0.66	0.61	0.35	0.31	0.33	0.31	0.32	0.31
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.6	0.1	0.5	0.3	0.5	0.2	0.6	0.4	1.1	0.6
Magnesium, Total, ICAP	mg/l			6.6	6.2	1.3	1.3	2	1.9	5.7	5.3	16	15
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.4	2.4	1.4	1.5	2	2	1.8	1.8	3.4	3.5
Sodium, Total, ICAP	mg/l			150	150	100	100	54	52	37	35	62	60
Sulfate	mg/l	500	S	8.7	14	ND	ND	13	14	10	10	4.3	4.9
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	0.135	0.138
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			2.6	2.5	2.7	2.7	0.5	0.4	0.5	0.37	1.7	1.6
Carbon Dioxide	mg/l			2.4	7	ND	ND	ND	ND	ND	ND	2.1	6.2
General Physical Properties													
Apparent Color	ACU	15	S	**25**	**25**	**40**	**30**	3	3	ND	3	ND	5
Lab pH	Units			8.4	7.9	8.6	8.5	8.4	8.2	8.4	8.2	8.3	7.8
Odor	TON	3	S	**17**	**40**	**4**	**3**	**4**	2	**4**	**3**	**8**	**4**
pH of CaCO3 saturation(25C)	Units			7.8	7.8	8.1	8.2	7.9	8	7.8	7.8	7.2	7.2
pH of CaCO3 saturation(60C)	Units			7.4	7.4	7.7	7.7	7.5	7.5	7.4	7.4	6.8	6.8
Specific Conductance	umho/cm	1600	S	770	791	520	522	380	389	330	324	720	756
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	7.1	3.2	**17**	**16**	**15**	**13**
Barium, Total, ICAP/MS	ug/l	1000	P	12	ND	8.3	6.9	68	100	88	100	260	290
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	3.5	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	11	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		3.6	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 17 of 25

Water Quality Constituents	Units	MCL	MCL Type	Norwalk #2 Zone 1 08/20/07	Norwalk #2 Zone 2 08/20/07	Norwalk #2 Zone 3 08/20/07	Norwalk #2 Zone 4 08/20/07	Norwalk #2 Zone 5 08/20/07	Norwalk #2 Zone 6 08/20/07
Major Minerals									
Total Dissolved Solid (TDS)	mg/l	1000	S	424	290	236	330	492	522
Cation Sum	meq/l			7.1	5	4.1	5.6	7.8	8.4
Anion Sum	meq/l			6.7	4.9	4	5.1	7.8	8.4
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	ND	20	ND	42	4.2
Turbidity	NTU	5	S	0.3	0.55	0.2	0.2	0.75	0.3
Alkalinity	mg/l			192	182	151	159	162	184
Boron	mg/l			0.28	0.25	0.054	0.059	0.16	0.21
Bicarbonate as HCO3,calculated	mg/l			230	220	180	190	200	220
Calcium, Total, ICAP	mg/l			20	12	39	64	80	86
Carbonate as CO3, Calculated	mg/l			ND	3.6	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			67	41	120	210	270	290
Chloride	mg/l	500	S	65	34	12	20	72	72
Fluoride	mg/l	2	P	0.4	0.49	0.24	0.31	0.28	0.4
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.3	0.4	0.5	0.5	0.6	0.8
Magnesium, Total, ICAP	mg/l			4.1	2.6	5	11	17	18
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	1	2.7	2.9
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.3	2.4	2.7	3.4	4	3.9
Sodium, Total, ICAP	mg/l			130	94	39	32	54	59
Sulfate	mg/l	500	S	49	14	32	63	110	120
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	1	2.7	2.9
Total Organic Carbon	mg/l			1.7	1.4	0.41	ND	0.59	0.604
Carbon Dioxide	mg/l			3	ND	2.3	3.9	5.2	3.6
General Physical Properties									
Apparent Color	ACU	15	S	10	**15**	ND	ND	ND	ND
Lab pH	Units			8.1	8.4	8.1	7.9	7.8	8
Odor	TON	3	S	1	2	1	1	1	1
pH of CaCO3 saturation(25C)	Units			7.8	8	7.6	7.4	7.2	7.2
pH of CaCO3 saturation(60C)	Units			7.3	7.6	7.1	6.9	6.8	6.7
Specific Conductance	umho/cm	1600	S	697	497	404	517	778	839
Metals									
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	2.4	3.3	1.5
Barium, Total, ICAP/MS	ug/l	1000	P	ND	ND	20	130	59	53
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	3	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.6	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 18 of 25

Water Quality Constituents	Units	MCL	MCL Type	Pico #1 Zone 2 05/10/07	Pico #1 Zone 2 09/27/07	Pico #1 Zone 3 05/10/07	Pico #1 Zone 3 09/27/07	Pico #1 Zone 4 05/10/07	Pico #1 Zone 4 09/27/07
Major Minerals									
Total Dissolved Solid (TDS)	mg/l	1000	S	318	318	536	548	624	576
Cation Sum	meq/l			5.6	5.7	9.3	9.4	9.5	10
Anion Sum	meq/l			5.5	4.7	9.1	8.4	6.3	8.7
Iron, Total, ICAP	mg/l	0.30	S	0.28	0.28	**0.44**	**0.39**	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	28	29	24	22	2.1	ND
Turbidity	NTU	5	S	1.7	1.5	3.5	3.2	0.1	0.2
Alkalinity	mg/l			170	130	167	143	182	129
Boron	mg/l			0.071	ND	0.2	0.11	0.22	0.18
Bicarbonate as HCO3,calculated	mg/l			210	160	200	170	221	160
Calcium, Total, ICAP	mg/l			69	71	89	110	100	110
Carbonate as CO3, Calculated	mg/l			ND	ND	4.1	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			230	230	300	360	330	360
Chloride	mg/l	500	S	21	21	94	78	100	100
Fluoride	mg/l	2	P	0.31	0.3	0.3	0.34	0.26	0.29
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.4	1.3	0.3	8.1	0.4
Magnesium, Total, ICAP	mg/l			13	13	19	21	19	20
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	1.9	1.9
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.9	2.9	4.6	4.3	4.7	5
Sodium, Total, ICAP	mg/l			22	23	72	47	64	67
Sulfate	mg/l	500	S	72	73	150	160	160	151
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	1.9	1.9
Total Organic Carbon	mg/l			0.3	ND	0.7	0.5	0.7	0.6
Carbon Dioxide	mg/l			2.7	4.2	ND	8.8	2.9	6.6
General Physical Properties									
Apparent Color	ACU	15	S	5	5	10	10	3	ND
Lab pH	Units			8.1	7.8	8.5	7.5	8.1	7.6
Odor	TON	3	S	2	1	1	1	1	1
pH of CaCO3 saturation(25C)	Units			7.3	7.4	7.2	7.2	7.1	7.2
pH of CaCO3 saturation(60C)	Units			6.8	6.9	6.7	6.7	6.7	6.8
Specific Conductance	umho/cm	1600	S	410	502	840	863	955	923
Metals									
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	2.9	ND
Barium, Total, ICAP/MS	ug/l	1000	P	80	85	51	49	62	ND
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.7	ND	2.6	ND	3.3	1.3
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	25
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 19 of 25

Water Quality Constituents	Units	MCL	MCL Type	Pico #2 Zone 1 05/21/07	Pico #2 Zone 1 09/27/07	Pico #2 Zone 2 05/21/07	Pico #2 Zone 2 09/27/07	Pico #2 Zone 3 05/21/07	Pico #2 Zone 3 09/27/07	Pico #2 Zone 4 05/21/07	Pico #2 Zone 4 09/27/07	Pico #2 Zone 5 05/21/07	Pico #2 Zone 5 09/27/07	Pico #2 Zone 6 05/21/07	Pico #2 Zone 6 09/27/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	514	512	548	562	506	512	490	466	446	468	486	526
Cation Sum	meq/l			9.1	9.1	10	9.9	8.7	9.3	8.1	8.1	7.8	7.9	8.6	9
Anion Sum	meq/l			8.7	8.1	9.7	7.5	8.4	7.1	7.8	8	7.5	8.1	8.3	9.1
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	4.1	ND	2.2	2.1	2.5	3.4	5.4	24	27	**300**	**620**
Turbidity	NTU	5	S	0.45	0.35	0.45	0.4	0.9	0.9	0.2	0.35	0.4	0.35	0.3	0.15
Alkalinity	mg/l			208	170	227	112	196	114	151	148	145	149	126	134
Boron	mg/l			0.08	0.059	0.13	0.11	0.14	0.1	0.25	0.22	0.26	0.21	0.21	0.21
Bicarbonate as HCO3,calculated	mg/l			250	210	280	140	240	140	180	180	180	180	150	160
Calcium, Total, ICAP	mg/l			110	110	130	120	100	110	69	68	60	61	58	66
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			370	370	440	410	340	370	230	230	220	220	220	250
Chloride	mg/l	500	S	50	54	70	74	62	67	87	89	82	87	110	120
Fluoride	mg/l	2	P	0.29	0.28	0.28	0.29	0.32	0.35	0.36	0.34	0.36	0.36	0.32	0.3
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.7	0.9	0.5	0.7	0.5	0.3	0.3	0.2	0.2	-0.1	0.1
Magnesium, Total, ICAP	mg/l			24	23	27	26	21	22	15	15	16	16	18	20
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	3	3.1	3.1	3.2	3.2	3.3	3.7	3.5	2.7	2.1	2.3	2
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			5.1	5.6	4	4	4	4.2	3.9	4	4.2	4.3	7.3	7.3
Sodium, Total, ICAP	mg/l			35	37	38	38	42	43	77	78	77	79	92	90
Sulfate	mg/l	500	S	140	139	140	140	120	128	100	110	100	118	120	137
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	0.054	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			3	3.1	3.1	3.2	3.2	3.3	3.7	3.5	2.7	2.1	2.3	2
Total Organic Carbon	mg/l			0.52	0.3	0.38	0.4	19	0.3	8.6	0.7	18.5	1	16	1.3
Carbon Dioxide	mg/l			6.5	5.5	7.3	4.6	6.2	3.6	5.9	5.9	7.4	7.4	9.8	8.3
General Physical Properties															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	3	3	ND	3	3
Lab pH	Units			7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7	7.6	7.6	7.4	7.5
Odor	TON	3	S	2	1	1	1	1	1	1	1	2	1	2	1
pH of CaCO3 saturation(25C)	Units			7	7.1	6.9	7.2	7.1	7.3	7.4	7.4	7.4	7.4	7.5	7.4
pH of CaCO3 saturation(60C)	Units			6.6	6.6	6.4	6.8	6.6	6.8	6.9	6.9	7	7	7.1	7
Specific Conductance	umho/cm	1600	S	800	785	902	878	798	806	772	765	745	754	817	864
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	2.2	2.3	2.2	2.1	1.6	1.6	2.6	2.6	ND	ND	**15**	**14**
Barium, Total, ICAP/MS	ug/l	1000	P	160	170	131	130	130	130	59	59	78	80	150	180
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.7	1.9	ND	1.1	1.3	1.6	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	2.1	2.2	2.5	3.3
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	0.6	0.5	2.5	2.2	**5.8**	**6.2**	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND	ND	ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 20 of 25

Water Quality Constituents	Units	MCL	MCL Type	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				05/08/07	09/27/07	05/08/07	09/27/07	05/08/07	09/27/07	05/08/07	09/27/07	05/08/07	09/27/07	05/08/07	09/27/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	244	254	454	466	464	468	452	452	260	270	324	398
Cation Sum	meq/l			4.5	4.7	7.7	7.7	7.8	8.1	7.6	7.7	4.9	4.7	5.9	6.9
Anion Sum	meq/l			4.4	4.6	7.8	7	7.8	6.8	7.6	7.7	4.9	4.7	5.8	6.9
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	0.078	0.072	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**53**	30	39	38	ND	ND	ND	ND	ND	ND	ND	ND
Turbidity	NTU	5	S	2.1	0.5	0.25	0.4	0.1	0.1	0.25	0.25	0.85	1.7	0.35	0.4
Alkalinity	mg/l			146	153	169	130	184	129	137	146	111	119	102	123
Boron	mg/l			0.068	ND	0.057	ND	0.16	0.13	0.19	0.17	0.15	0.11	0.11	0.095
Bicarbonate as HCO3,calculated	mg/l			180	190	210	160	220	160	170	180	130	150	120	150
Calcium, Total, ICAP	mg/l			41	42	100	100	88	91	72	70	44	40	52	63
Carbonate as CO3, Calculated	mg/l			ND	2	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			140	140	320	320	290	290	240	230	150	140	190	230
Chloride	mg/l	500	S	17	18	52	53	60	61	85	82	39	32	71	82
Fluoride	mg/l	2	P	0.26	0.23	0.21	0.19	0.32	0.28	0.37	0.37	0.38	0.35	0.29	0.25
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.6	0.7	1	0.8	1	0.5	0.6	0.4	0.4	-0.1	0.4	-0.1
Magnesium, Total, ICAP	mg/l			8.6	8.6	18	18	16	16	14	14	9.5	8.7	14	17
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	2	2	2.8	2.6	1.6	1.3	1.3	2.2
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3	2.9	3.5	3.5	3.8	3.8	3.9	4	3	3	3.9	4.2
Sodium, Total, ICAP	mg/l			38	41	25	27	46	50	63	67	42	45	48	52
Sulfate	mg/l	500	S	48	48	140	140	110	114	110	110	70	65	81	96
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	2	2	2.8	2.6	1.6	1.3	1.3	2.2
Total Organic Carbon	mg/l			0.6	0.4	0.6	ND	0.8	0.4	0.9	0.6	0.6	0.5	1.1	0.5
Carbon Dioxide	mg/l			ND	2	2.7	2.6	2.3	4.2	2.8	5.9	ND	6.2	2	9.8
General Physical Properties															
Apparent Color	ACU	15	S	3	ND	ND	ND	ND	ND	ND	ND	ND	3	ND	ND
Lab pH	Units			8.2	8.2	8.1	8	8.2	7.8	8	7.7	8.1	7.6	8	7.4
Odor	TON	3	S	**3**	1	**3**	1	**3**	1	2	1	**3**	1	**3**	1
pH of CaCO3 saturation(25C)	Units			7.6	7.5	7.1	7.2	7.2	7.3	7.4	7.3	7.7	7.7	7.6	7.5
pH of CaCO3 saturation(60C)	Units			7.1	7.1	6.7	6.8	6.7	6.8	6.9	6.9	7.2	7.2	7.2	7
Specific Conductance	umho/cm	1600	S	450	413	730	705	740	727	780	709	520	434	620	657
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	1.8	ND	ND	ND	2.1	2.2	2.5	2.6	1.7	2	ND	1
Barium, Total, ICAP/MS	ug/l	1000	P	29	23	58	58	130	130	67	63	47	45	100	110
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 21 of 25

Water Quality Constituents	Units	MCL	MCL Type	South Gate #1 Zone 1 05/17/07	South Gate #1 Zone 1 09/24/07	South Gate #1 Zone 2 05/17/07	South Gate #1 Zone 2 09/24/07	South Gate #1 Zone 3 05/17/07	South Gate #1 Zone 3 09/24/07	South Gate #1 Zone 4 05/17/07	South Gate #1 Zone 4 09/24/07	South Gate #1 Zone 5 05/17/07	South Gate #1 Zone 5 09/24/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	270	284	344	392	398	410	418	452	560	556
Cation Sum	meq/l			5.3	5.1	6.8	6.6	7	6.6	7.5	7.2	10	9.6
Anion Sum	meq/l			5.2	5.5	6.7	6.6	6.8	6.9	7.5	6.9	9.7	9.4
Iron, Total, ICAP	mg/l	0.30	S	0.046	0.05	ND	ND	ND	ND	ND	ND	0.084	0.081
Manganese, Total, ICAP/MS	ug/l	50	S	**60**	**57**	ND	ND	ND	ND	ND	ND	**135**	**130**
Turbidity	NTU	5	S	0.1	0.3	0.2	0.2	0.1	0.4	0.15	0.1	0.25	0.4
Alkalinity	mg/l			173	185	148	133	164	165	172	139	202	174
Boron	mg/l			0.1	0.11	0.13	0.13	0.11	0.11	0.15	0.16	0.14	0.14
Bicarbonate as HCO3,calculated	mg/l			210	220	180	160	200	200	210	170	250	210
Calcium, Total, ICAP	mg/l			51	50	73	70	78	73	80	77	110	100
Carbonate as CO3, Calculated	mg/l			2.2	ND	ND	ND	ND	ND	ND	ND	2	ND
Hardness (Total, as CaCO3)	mg/l			160	160	240	230	260	240	270	250	390	360
Chloride	mg/l	500	S	20	22	52	53	44	46	55	57	120	120
Fluoride	mg/l	2	P	0.28	0.32	0.31	0.32	0.37	0.39	0.36	0.39	0.4	0.43
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.7	0.8	0.6	0.8	0.5	0.9	0.5	1.1	0.7
Magnesium, Total, ICAP	mg/l			8.4	8	14	13	16	15	16	15	28	27
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	2.3	2.3	2.3	2.3	2.1	2.1	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.3	2.3	3.2	3.1	2.8	2.6	3	3	3	2.9
Sodium, Total, ICAP	mg/l			46	44	45	44	39	37	49	48	57	54
Sulfate	mg/l	500	S	56	57	100	110	100	100	110	110	110	120
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	2.3	2.3	2.3	2.3	2.1	2.1	ND	ND
Total Organic Carbon	mg/l			0.32	0.3	0.53	0.3	ND	ND	0.36	0.5	0.81	0.9
Carbon Dioxide	mg/l			2.2	2.9	2.3	2.6	2.6	5.2	2.7	4.4	3.3	5.5
General Physical Properties													
Apparent Color	ACU	15	S	3	3	ND	ND	ND	ND	ND	ND	ND	ND
Lab pH	Units			8.2	8.1	8.1	8	8.1	7.8	8.1	7.8	8.1	7.8
Odor	TON	3	S	2	1	1	1	2	1	1	2	1	2
pH of CaCO3 saturation(25C)	Units			7.4	7.4	7.3	7.4	7.3	7.3	7.2	7.3	7	7.1
pH of CaCO3 saturation(60C)	Units			7	6.9	6.9	6.9	6.8	6.8	6.8	6.9	6.6	6.7
Specific Conductance	umho/cm	1600	S	494	481	642	636	643	625	707	707	918	926
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	1.9	2.3	2.6	3.2	2.8	3	1.9	1.9	2.3	2.3
Barium, Total, ICAP/MS	ug/l	1000	P	130	130	94	110	140	140	74	72	220	230
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	0.9	0.96	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.7	0.7	**5.5**	**5.5**	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 22 of 25

Water Quality Constituents	Units	MCL	MCL Type	Whittier #1 Zone 1 05/08/07	Whittier #1 Zone 1 09/25/07	Whittier #1 Zone 2 05/08/07	Whittier #1 Zone 2 09/25/07	Whittier #1 Zone 3 05/08/07	Whittier #1 Zone 3 09/25/07	Whittier #1 Zone 4 05/08/07	Whittier #1 Zone 4 09/25/07	Whittier #1 Zone 5 05/08/07	Whittier #1 Zone 5 09/25/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	**2600**	**2690**	**2470**	**2560**	**1700**	**1790**	680	698	668	698
Cation Sum	meq/l			40	41	39	34	27	28	12	12	11	12
Anion Sum	meq/l			34	32	34	31	28	25	12	10	11	9.5
Iron, Total, ICAP	mg/l	0.30	S	**0.55**	**0.58**	**0.43**	**0.41**	0.28	0.27	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**69**	**62**	**110**	**95**	**96**	**89**	18	18	8.8	7.5
Turbidity	NTU	5	S	3.6	3.8	2.8	2.7	1.7	1.9	ND	0.2	0.5	0.3
Alkalinity	mg/l			267	181	290	199	297	181	259	185	237	161
Boron	mg/l			0.86	0.92	0.88	0.92	0.63	0.65	0.2	0.21	0.16	0.17
Bicarbonate as HCO3,calculated	mg/l			320	220	350	240	360	220	310	230	290	200
Calcium, Total, ICAP	mg/l			190	200	190	180	160	170	82	84	83	84
Carbonate as CO3, Calculated	mg/l			2.1	ND	2.3	ND	2.9	ND	2.5	ND	2.4	ND
Hardness (Total, as CaCO3)	mg/l			1000	1000	1000	940	780	800	360	360	380	380
Chloride	mg/l	500	S	280	280	250	210	190	190	81	79	85	83
Fluoride	mg/l	2	P	0.28	0.25	0.29	0.27	0.5	0.47	0.17	0.17	0.3	0.29
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			1.3	0.8	1.4	0.9	1.4	0.7	1.1	0.4	1	0.4
Magnesium, Total, ICAP	mg/l			130	130	130	120	92	92	37	37	41	41
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	4.2	4.1	5.1	5
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			10	11	9.9	10	7	7.2	4	4.2	3.4	3.5
Sodium, Total, ICAP	mg/l			440	450	430	340	260	270	100	110	86	89
Sulfate	mg/l	500	S	**1000**	**1000**	**1000**	**1000**	**780**	**780**	180	190	180	170
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	4.2	4.1	5.1	5
Total Organic Carbon	mg/l			2.1	1.9	2.5	2.3	1.5	1.3	0.5	ND	0.7	0.3
Carbon Dioxide	mg/l			5.2	9.1	5.7	7.9	4.7	9.1	4	9.5	3.8	8.2
General Physical Properties													
Apparent Color	ACU	15	S	**15**	**15**	**15**	**15**	10	5	ND	ND	ND	ND
Lab pH	Units			8	7.6	8	7.7	8.1	7.6	8.1	7.6	8.1	7.6
Odor	TON	3	S	1	2	**3**	1	2	2	2	1	2	1
pH of CaCO3 saturation(25C)	Units			6.7	6.8	6.6	6.8	6.7	6.9	7	7.2	7.1	7.2
pH of CaCO3 saturation(60C)	Units			6.2	6.4	6.2	6.4	6.2	6.4	6.6	6.7	6.6	6.8
Specific Conductance	umho/cm	1600	S	**3500**	**3300**	**3300**	**3140**	**2200**	**2260**	1100	1030	1000	1020
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	1.4	1.3	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	19	18	19	19	22	23	33	34	29	29
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	3.2	3.1
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	17	15	19	19
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 23 of 25

Water Quality Constituents	Units	MCL	MCL Type	Whittier #2 Zone 1 08/22/07	Whittier #2 Zone 2 08/22/07	Whittier #2 Zone 3 08/22/07	Whittier #2 Zone 4 08/22/07	Whittier #2 Zone 5 08/22/07	Whittier #2 Zone 6 08/22/07
Major Minerals									
Total Dissolved Solid (TDS)	mg/l	1000	S	848	258	730	**1760**	722	964
Cation Sum	meq/l			14	4.1	12	26	11	15
Anion Sum	meq/l			15	4.2	12	29	9.9	16
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**62**	25	**110**	**260**	ND	ND
Turbidity	NTU	5	S	1	1.6	0.65	0.35	1.3	0.4
Alkalinity	mg/l			240	174	219	410	121	357
Boron	mg/l			0.59	0.26	0.24	0.77	0.18	0.32
Bicarbonate as HCO3,calculated	mg/l			290	210	270	500	150	430
Calcium, Total, ICAP	mg/l			85	17	83	130	120	140
Carbonate as CO3, Calculated	mg/l			ND	2.2	ND	ND	ND	4.4
Hardness (Total, as CaCO3)	mg/l			310	56	350	670	400	500
Chloride	mg/l	500	S	240	10	120	250	120	100
Fluoride	mg/l	2	P	0.26	0.31	0.29	0.47	0.3	0.31
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.7	0.3	0.9	1	0.7	1.5
Magnesium, Total, ICAP	mg/l			23	3.4	34	83	25	36
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	0.51	2.3	4.7	7.4
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			5.2	2.3	4.2	4	4.4	4.5
Sodium, Total, ICAP	mg/l			180	67	120	300	71	120
Sulfate	mg/l	500	S	140	18	210	**630**	180	240
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	0.51	2.3	4.7	7.4
Total Organic Carbon	mg/l			0.9	1.8	0.52	0.55	0.42	0.58
Carbon Dioxide	mg/l			7.5	2.2	4.4	21	3.1	4.4
General Physical Properties									
Apparent Color	ACU	15	S	ND	5	ND	ND	ND	ND
Lab pH	Units			7.8	8.2	8	7.6	7.9	8.2
Odor	TON	3	S	**4**	**3**	1	2	1	2
pH of CaCO3 saturation(25C)	Units			7.1	7.9	7.1	6.6	7.2	6.7
pH of CaCO3 saturation(60C)	Units			6.6	7.4	6.7	6.2	6.8	6.2
Specific Conductance	umho/cm	1600	S	1480	396	1150	**2490**	1150	1430
Metals									
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	31	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	2.4	1.1	1.1	2.1
Barium, Total, ICAP/MS	ug/l	1000	P	61	14	48	17	89	35
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	3	ND	ND	4
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	8.4	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	1.4	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 24 of 25

Water Quality Constituents	Units	MCL	MCL Type	Whittier Narrows #1 Zone 1 09/27/07	Whittier Narrows #1 Zone 2 09/27/07	Whittier Narrows #1 Zone 3 09/27/07	Whittier Narrows #1 Zone 4 09/27/07	Whittier Narrows #1 Zone 5 09/28/07	Whittier Narrows #1 Zone 6 09/28/07	Whittier Narrows #1 Zone 7 09/28/07	Whittier Narrows #1 Zone 8 09/28/07	Whittier Narrows #1 Zone 9 09/28/07
Major Minerals												
Total Dissolved Solid (TDS)	mg/l	1000	S	**1250**	198	348	424	322	520	518	530	554
Cation Sum	meq/l			20	3.8	5.9	7.2	5.3	8.8	8.8	9	9.3
Anion Sum	meq/l			20	4	5.1	7.5	5.3	8.9	8.1	8.9	9.3
Iron, Total, ICAP	mg/l	0.30	S	**9.1**	0.032	0.063	0.026	ND	ND	0.047	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**630**	20	ND	ND	ND	16	42	15	11
Turbidity	NTU	5	S	**39**	0.9	0.6	1.2	0.4	0.2	0.7	0.35	0.35
Alkalinity	mg/l			80	131	104	163	131	162	136	164	156
Boron	mg/l			0.89	0.16	ND	ND	ND	0.21	0.21	0.24	0.21
Bicarbonate as HCO3,calculated	mg/l			98	160	130	200	160	200	170	200	190
Calcium, Total, ICAP	mg/l			63	13	79	94	65	90	81	77	78
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	2.1	ND	2.1	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			210	35	230	280	210	290	260	250	260
Chloride	mg/l	500	S	**660**	43	41	65	37	110	100	97	110
Fluoride	mg/l	2	P	0.82	0.42	0.24	0.24	0.22	0.21	0.22	0.24	0.24
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			-0.7	0	0.6	1	0.8	1	0.8	0.8	0.7
Magnesium, Total, ICAP	mg/l			13	0.64	7.9	12	12	15	14	14	15
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	1.5	1.3	1.2	ND	0.88	2	1.5
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.8	1.8	2.5	4.1	3.5	5.1	5	5	5.4
Sodium, Total, ICAP	mg/l			360	70	28	32	22	67	80	88	92
Sulfate	mg/l	500	S	ND	7.9	84	110	76	120	120	130	140
Surfactants	mg/l	1	S	0.066	ND	ND	ND	ND	0.052	ND	0.056	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	1.5	1.3	1.2	ND	0.88	2	1.5
Total Organic Carbon	mg/l			5.5	0.9	0.5	0.6	0.6	1.1	1.1	1.2	1.4
Carbon Dioxide	mg/l			16	2.1	2.1	2.1	ND	2.1	2.2	2.6	3.1
General Physical Properties												
Apparent Color	ACU	15	S	**60**	3	3	ND	ND	ND	ND	3	3
Lab pH	Units			7	8.1	8	8.2	8.2	8.2	8.1	8.1	8
Odor	TON	3	S	**8**	**8**	1	1	**3**	**3**	2	1	2
pH of CaCO3 saturation(25C)	Units			7.7	8.1	7.4	7.2	7.4	7.2	7.3	7.3	7.3
pH of CaCO3 saturation(60C)	Units			7.2	7.7	7	6.7	7	6.8	6.9	6.8	6.8
Specific Conductance	umho/cm	1600	S	**2210**	364	550	668	519	864	860	860	905
Metals												
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	79	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	7.8	2	1	1.6	1.8	1.5	1.7	1.4	1.1
Barium, Total, ICAP/MS	ug/l	1000	P	460	25	150	170	150	130	130	79	56
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	6.1	2.3	1.6	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	0.54	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	4.8	ND	ND	ND	ND	ND	2.7	2.5
Lead, Total, ICAP/MS	ug/l			ND	1.2	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	9.7	ND	9	ND	14	41	20	14
Selenium, Total, ICAP/MS	ug/l	50	P	12	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	24	210	31	24	24	ND	ND	ND	27
Volatile Organic Compounds												
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	0.8	0.5	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	0.8	0.6	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 25 of 25

Water Quality Constituents	Units	MCL	MCL Type	Willowbrook #1 Zone 1 05/03/07	Willowbrook #1 Zone 1 09/30/07	Willowbrook #1 Zone 2 05/03/07	Willowbrook #1 Zone 2 09/30/07	Willowbrook #1 Zone 3 05/03/07	Willowbrook #1 Zone 3 09/30/07	Willowbrook #1 Zone 4 05/03/07	Willowbrook #1 Zone 4 09/30/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	340	358	330	336	322	338	306	336
Cation Sum	meq/l			6.2	6	5.5	5.5	5.8	5.8	5.7	5.8
Anion Sum	meq/l			6.3	5.7	5.5	5.6	5.7	5.6	5.7	5.8
Iron, Total, ICAP	mg/l	0.30	S	0.059	0.063	0.023	ND	0.085	0.08	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**61**	ND	**58**	ND	33	ND	**91**	30
Turbidity	NTU	5	S	1.1	0.3	0.25	0.05	0.3	0.2	**6.6**	**14**
Alkalinity	mg/l			256	196	170	173	182	177	183	186
Boron	mg/l			0.22	0.12	0.13	0.1	0.13	0.1	0.14	0.11
Bicarbonate as HCO3,calculated	mg/l			310	240	210	210	220	220	220	230
Calcium, Total, ICAP	mg/l			39	50	55	57	58	59	57	59
Carbonate as CO3, Calculated	mg/l			2.5	2	2.2	2.2	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			130	170	180	180	200	200	180	190
Chloride	mg/l	500	S	17	19	20	21	20	20	23	23
Fluoride	mg/l	2	P	0.27	0.31	0.31	0.3	0.45	0.44	0.4	0.39
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.8
Magnesium, Total, ICAP	mg/l			8.6	11	10	10	13	13	10	11
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			4.9	4.1	2.9	2.3	3.3	3.1	2.8	2.7
Sodium, Total, ICAP	mg/l			79	58	43	41	40	38	44	43
Sulfate	mg/l	500	S	31	60	74	73	73	72	68	69
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			2.4	1	0.3	0.4	ND	ND	0.6	ND
Carbon Dioxide	mg/l			4	3.1	2.2	2.2	3.6	3.6	3.6	3
General Physical Properties											
Apparent Color	ACU	15	S	**20**	5	3	ND	5	3	5	3
Lab pH	Units			8.1	8.1	8.2	8.2	8	8	8	8.1
Odor	TON	3	S	**17**	**3**	**3**	1	2	**3**	**67**	1
pH of CaCO3 saturation(25C)	Units			7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
pH of CaCO3 saturation(60C)	Units			6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Specific Conductance	umho/cm	1600	S	590	552	540	527	550	535	560	543
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	8.2	2.2	ND	1.9	3.5	1	6.7	ND
Barium, Total, ICAP/MS	ug/l	1000	P	60	130	52	44	71	110	120	23
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13	P	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (P): Primary MCL (S): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 1 of 15

Water Quality Constituents	Units	MCL	MCL Type	Carson #1 Zone 1 4/11/07	Carson #1 Zone 1 9/11/07	Carson #1 Zone 2 4/11/07	Carson #1 Zone 2 9/11/07	Carson #1 Zone 3 4/11/07	Carson #1 Zone 3 9/11/07	Carson #1 Zone 4 4/11/07	Carson #1 Zone 4 9/11/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	190	194	354	236	300	312	350	368
Cation Sum	meq/l			3.3	3.5	4.2	4	5.4	5.2	6.2	6.2
Anion Sum	meq/l			3.6	4	4.1	4.6	5.4	5.9	6.3	7
Iron, Total, ICAP	mg/l	0.30	S	ND	0.02	0.026	ND	ND	ND	0.056	0.055
Manganese, Total, ICAP/MS	ug/l	50	S	26	28	18	18	29	32	**79**	**84**
Turbidity	NTU	5	S	0.1	0.45	0.05	0.2	ND	0.1	3.3	2.7
Alkalinity	mg/l			149	170	175	200	168	198	185	221
Boron	mg/l			0.097	0.089	0.1	0.1	0.1	0.1	0.12	0.13
Bicarbonate as HCO3,calculated	mg/l			180	210	210	240	200	240	220	270
Calcium, Total, ICAP	mg/l			20	21	34	32	46	44	52	50
Carbonate as CO3, Calculated	mg/l			ND	3.4	3.4	2.5	2.6	3.1	ND	2.2
Hardness (Total, as CaCO3)	mg/l			67	70	110	110	170	160	190	180
Chloride	mg/l	500	S	20	20	21	21	23	21	38	41
Fluoride	mg/l	2.00	P	0.24	0.26	0.19	0.24	0.28	0.36	0.39	0.49
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.3	0.6	0.8	0.6	0.8	0.9	0.7	0.8
Magnesium, Total, ICAP	mg/l			4.2	4.2	7.3	6.7	13	12	14	14
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.4	2.7	2.3	2.4	2.9	3	3.4	3.6
Sodium, Total, ICAP	mg/l			44	47	42	41	44	44	54	56
Sulfate	mg/l	500	S	ND	ND	ND	ND	65	62	71	68
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			0.71	0.77	0.48	0.41	0.48	0.38	0.44	0.42
Carbon Dioxide	mg/l			ND	ND	ND	2.5	ND	2	2.9	3.5
General Physical Properties											
Apparent Color	ACU	15	S	10	5	ND	3	ND	ND	ND	3
Lab pH	Units			8.2	8.4	8.4	8.2	8.3	8.3	8.1	8.1
Odor	TON	3	S	**4**	2	**3**	2	2	2	**3**	2
pH of CaCO3 saturation(25C)	Units			7.9	7.8	7.6	7.6	7.5	7.4	7.4	7.3
pH of CaCO3 saturation(60C)	Units			7.4	7.4	7.1	7.1	7	7	6.9	6.9
Specific Conductance	umho/cm	1600	S	340	341	380	389	500	507	590	606
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	1.1	1.6	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	19	19	37	38	66	67	190	190
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	1.6	ND	ND	ND	1.9	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 2 of 15

Water Quality Constituents	Units	MCL	MCL Type	Carson #2 Zone 1 4/12/07	Carson #2 Zone 1 9/10/07	Carson #2 Zone 2 4/12/07	Carson #2 Zone 2 9/10/07	Carson #2 Zone 3 4/12/07	Carson #2 Zone 3 9/10/07	Carson #2 Zone 4 4/12/07	Carson #2 Zone 4 9/10/07	Carson #2 Zone 5 4/12/07	Carson #2 Zone 5 9/10/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	214	224	266	252	254	270	244	242	252	268
Cation Sum	meq/l			3.8	3.7	4.4	4.4	4.5	4.4	4.3	4.2	4.5	4.5
Anion Sum	meq/l			3.9	4	4.5	4.7	4.7	4.7	4.3	4.4	4.6	4.8
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	ND	ND	0.022	ND	ND	ND	0.056	0.045
Manganese, Total, ICAP/MS	ug/l	50	S	3.2	2.7	9.1	8.5	18	19	13	13	**60**	**64**
Turbidity	NTU	5	S	0.65	1	0.1	0.2	**14**	0.05	ND	0.3	**8.6**	**18**
Alkalinity	mg/l			166	172	196	203	190	190	183	188	180	189
Boron	mg/l			0.13	0.13	0.13	0.13	0.13	0.12	0.11	0.1	0.1	0.099
Bicarbonate as HCO3,calculated	mg/l			200	210	240	250	230	230	220	230	220	230
Calcium, Total, ICAP	mg/l			3.3	2.8	11	11	26	26	32	31	40	39
Carbonate as CO3, Calculated	mg/l			4.1	8.6	3.1	5.1	2.4	3	ND	2.4	ND	ND
Hardness (Total, as CaCO3)	mg/l			11	8.8	43	42	100	100	130	120	140	130
Chloride	mg/l	500	S	20	20	21	22	22	22	22	22	21	22
Fluoride	mg/l	2.00	P	0.32	0.37	0.18	0.22	0.25	0.31	0.23	0.26	0.28	0.33
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			-0.1	0.1	0.3	0.5	0.5	0.6	0.5	0.6	0.6	0.5
Magnesium, Total, ICAP	mg/l			0.56	0.44	3.8	3.6	8.8	8.8	11	10	9.2	8.9
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			1.7	1.8	3.7	4	4	4.3	3.6	3.8	3.1	3.2
Sodium, Total, ICAP	mg/l			81	81	80	79	55	53	40	39	39	39
Sulfate	mg/l	500	S	ND	ND	ND	ND	11	14	ND	ND	18	18
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			1.5	1.8	1.1	1.2	0.71	0.74	0.49	0.48	0.3	0.39
Carbon Dioxide	mg/l			ND	ND	2	ND	2.4	ND	2.9	2.4	2.9	3.8
General Physical Properties													
Apparent Color	ACU	15	S	**40**	**35**	**25**	**20**	10	5	3	ND	ND	3
Lab pH	Units			8.5	8.8	8.3	8.5	8.2	8.3	8.1	8.2	8.1	8
Odor	TON	3	S	**17**	2	**8**	**3**	**40**	**4**	**40**	**4**	2	**3**
pH of CaCO3 saturation(25C)	Units			8.6	8.7	8	8	7.7	7.7	7.6	7.6	7.5	7.5
pH of CaCO3 saturation(60C)	Units			8.2	8.2	7.6	7.6	7.2	7.2	7.1	7.2	7.1	7
Specific Conductance	umho/cm	1600	S	370	357	430	411	440	422	410	397	430	425
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	22	21	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	ND	ND	6.3	6.3	13	13	16	16	19	20
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 3 of 15

Water Quality Constituents	Units	MCL	MCL Type	Chandler #3a Zone 2 4/12/07	Chandler #3a Zone 2 8/30/07	Chandler #3b Zone 1 4/12/07	Chandler #3b Zone 1 8/30/07
Major Minerals							
Total Dissolved Solid (TDS)	mg/l	1000	S	**1170**	**1120**	574	582
Cation Sum	meq/l			20	19	10	10
Anion Sum	meq/l			20	18	10	10
Iron, Total, ICAP	mg/l	0.30	S	ND	0.026	0.2	0.19
Manganese, Total, ICAP/MS	ug/l	50	S	19	34	**74**	**77**
Turbidity	NTU	5	S	1.4	**8.4**	1.1	1.3
Alkalinity	mg/l			459	388	333	333
Boron	mg/l			0.38	0.36	0.22	0.21
Bicarbonate as HCO3,calculated	mg/l			560	470	410	410
Calcium, Total, ICAP	mg/l			190	180	69	69
Carbonate as CO3, Calculated	mg/l			ND	ND	2.1	2.7
Hardness (Total, as CaCO3)	mg/l			680	640	260	260
Chloride	mg/l	500	S	237	240	124	120
Fluoride	mg/l	2.00	P	0.18	0.17	0.25	0.28
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND
Langelier Index - 25 degree	None			1.3	1.1	0.9	1
Magnesium, Total, ICAP	mg/l			51	47	21	21
Mercury	ug/l	2	P	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	**25**	**21**	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.9	3.7	3	3
Sodium, Total, ICAP	mg/l			150	140	110	120
Sulfate	mg/l	500	S	135	110	6.66	9.1
Surfactants	mg/l	1	S	0.06	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			25	21	ND	ND
Total Organic Carbon	mg/l			1.08	0.98	1.38	1.5
Carbon Dioxide	mg/l			18	19	8.5	6.7
General Physical Properties							
Apparent Color	ACU	15	S	ND	3	10	10
Lab pH	Units			7.7	7.6	7.9	8
Odor	TON	3	S	1	1	1	2
pH of CaCO3 saturation(25C)	Units			6.4	6.5	7	7
pH of CaCO3 saturation(60C)	Units			6	6.1	6.6	6.6
Specific Conductance	umho/cm	1600	S	**1905**	**1870**	990	1020
Metals							
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	2.6	1.9	3.3	2.7
Barium, Total, ICAP/MS	ug/l	1000	P	110	120	56	49
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	3.8	4.2	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	59	99	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	15	10	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	1.3	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND
Volatile Organic Compounds							
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND
TBA	ug/l			ND		**6.2**	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 4 of 15

Water Quality Constituents	Units	MCL	MCL Type	Gardena #1 Zone 1 5/16/07	Gardena #1 Zone 1 8/23/07	Gardena #1 Zone 2 5/16/07	Gardena #1 Zone 2 8/23/07	Gardena #1 Zone 3 5/16/07	Gardena #1 Zone 3 8/23/07	Gardena #1 Zone 4 5/16/07	Gardena #1 Zone 4 8/23/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	276	348	288	346	296	334	**1980**	**2410**
Cation Sum	meq/l			5.8	5.5	5.6	5.3	5.3	5.3	24	33
Anion Sum	meq/l			6.2	6.2	5.8	5.5	5.5	5.4	25	32
Iron, Total, ICAP	mg/l	0.30	S	0.14	0.11	ND	0.021	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	43	**58**	**57**	4.4	32	40	ND
Turbidity	NTU	5	S	**6.8**	1.6	**7.4**	**8**	**11**	**9**	**27**	**12**
Alkalinity	mg/l			286	282	186	174	176	168	167	131
Boron	mg/l			0.35	0.33	0.13	0.13	0.12	0.12	0.14	0.14
Bicarbonate as HCO3,calculated	mg/l			350	340	230	210	210	200	200	160
Calcium, Total, ICAP	mg/l			19	17	55	51	51	51	260	370
Carbonate as CO3, Calculated	mg/l			5.7	4.4	ND	2.7	ND	2.6	ND	ND
Hardness (Total, as CaCO3)	mg/l			82	75	190	180	170	170	950	1400
Chloride	mg/l	500	S	18	18	23	24	22	23	**720**	**960**
Fluoride	mg/l	2.00	P	0.19	0.21	0.43	0.43	0.41	0.4	0.18	0.18
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.6	0.8	0.9	0.7	0.9	1	1.2
Magnesium, Total, ICAP	mg/l			8.3	7.9	13	12	11	11	74	110
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	**12**	**17**
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			10	10	3.5	3.3	3.1	2.9	5.8	6.8
Sodium, Total, ICAP	mg/l			89	87	40	39	40	40	100	120
Sulfate	mg/l	500	S	ND	ND	68	65	64	66	43	43
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	0.12
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	12	17
Total Organic Carbon	mg/l			2.5	2.6	0.46	0.32	0.45	0.34	ND	ND
Carbon Dioxide	mg/l			2.3	2.8	3	ND	2.7	ND	6.5	3.3
General Physical Properties											
Apparent Color	ACU	15	S	**25**	**25**	3	3	3	ND	3	3
Lab pH	Units			8.4	8.3	8.1	8.3	8.1	8.3	7.7	7.9
Odor	TON	3	S	**4**	**16**	2	2	**3**	**3**	2	1
pH of CaCO3 saturation(25C)	Units			7.6	7.7	7.3	7.4	7.4	7.4	6.7	6.7
pH of CaCO3 saturation(60C)	Units			7.2	7.2	6.9	7	7	7	6.3	6.2
Specific Conductance	umho/cm	1600	S	584	588	590	551	531	537	**2610**	**3470**
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	**68**	ND	ND	2	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	290	18	57	54	55	28	31	470
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	6.4	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	7.9	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	1.2	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 5 of 15

Water Quality Constituents	Units	MCL	MCL Type	Gardena #2 Zone 1 4/24/07	Gardena #2 Zone 1 9/11/07	Gardena #2 Zone 2 4/24/07	Gardena #2 Zone 2 9/11/07	Gardena #2 Zone 3 4/24/07	Gardena #2 Zone 3 9/11/07	Gardena #2 Zone 4 4/24/07	Gardena #2 Zone 4 9/11/07	Gardena #2 Zone 5 4/24/07	Gardena #2 Zone 5 9/11/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	270	344	216	318	310	304	250	242	254	290
Cation Sum	meq/l			6.2	5.7	5.4	5.3	5.3	5.1	4.1	4.1	5.3	5.1
Anion Sum	meq/l			6.2	7.1	5.5	6.4	5.3	6	4.2	4.9	5.3	6.1
Iron, Total, ICAP	mg/l	0.30	S	0.029	0.027	0.047	0.041	0.06	0.052	ND	ND	0.059	0.047
Manganese, Total, ICAP/MS	ug/l	50	S	29	28	44	49	**59**	**62**	37	43	**82**	**74**
Turbidity	NTU	5	S	0.4	0.7	0.05	0.15	0.3	0.8	0.3	0.45	0.2	0.4
Alkalinity	mg/l			291	332	185	229	181	217	178	216	198	236
Boron	mg/l			0.32	0.29	0.17	0.15	0.13	0.12	0.1	0.083	0.13	0.12
Bicarbonate as HCO3,calculated	mg/l			350	400	220	280	220	260	220	260	240	290
Calcium, Total, ICAP	mg/l			16	15	38	37	49	47	32	31	49	47
Carbonate as CO3, Calculated	mg/l			5.7	6.5	2.3	2.9	2.3	2.1	2.3	2.7	2.5	3
Hardness (Total, as CaCO3)	mg/l			65	62	140	140	170	160	120	110	170	160
Chloride	mg/l	500	S	14	14	23	22	23	23	22	21	37	37
Fluoride	mg/l	2.00	P	0.28	0.29	0.3	0.3	0.43	0.42	0.32	0.32	0.35	0.34
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.7	0.7	0.7	0.8	0.8	0.7	0.6	0.7	0.8	0.9
Magnesium, Total, ICAP	mg/l			6.2	5.9	12	11	12	11	9.1	8.8	11	10
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			5.3	5.6	5.8	5.8	3.8	3.6	3.3	3.2	3.1	3.2
Sodium, Total, ICAP	mg/l			110	100	55	55	41	41	39	39	43	43
Sulfate	mg/l	500	S	ND	ND	56	55	47	46	ND	ND	14	13
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			3.6	3.3	0.6	0.72	0.4	0.6	0.7	0.59	0.3	0.41
Carbon Dioxide	mg/l			2.3	2.6	2.3	2.9	2.3	3.4	2.3	2.7	2.5	3
General Physical Properties													
Apparent Color	ACU	15	S	**35**	**25**	10	5	3	3	5	5	3	3
Lab pH	Units			8.4	8.4	8.2	8.2	8.2	8.1	8.2	8.2	8.2	8.2
Odor	TON	3	S	**40**	**3**	**3**	2	**3**	**3**	**4**	2	**40**	2
pH of CaCO3 saturation(25C)	Units			7.7	7.7	7.5	7.4	7.4	7.4	7.6	7.5	7.4	7.3
pH of CaCO3 saturation(60C)	Units			7.2	7.2	7.1	7	7	6.9	7.2	7.1	6.9	6.9
Specific Conductance	umho/cm	1600	S	560	569	510	530	490	498	390	399	500	506
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	20	19	19	20	21	22	59	59	70	74
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	2.2	ND	ND	ND	2.2	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 6 of 15

Water Quality Constituents	Units	MCL	MCL Type	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1	Hawthorne #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				4/16/07	9/28/07	4/16/07	9/28/07	4/16/07	9/28/07	4/16/07	9/28/07	4/16/07	9/28/07	4/16/07	9/28/07
Major Minerals															
Total Dissolved Solid (TDS)	mg/l	1000	S	870	874	814	782	602	590	434	458	**1070**	874	**2020**	**1850**
Cation Sum	meq/l			15	16	14	13	11	11	8.6	8.2	15	15	31	32
Anion Sum	meq/l			15	16	14	14	11	11	7.9	8.2	15	16	32	32
Iron, Total, ICAP	mg/l	0.30	S	0.15	ND	0.12	ND	0.21	0.21	0.034	0.022	0.024	ND	0.083	**1.1**
Manganese, Total, ICAP/MS	ug/l	50	S	11	14	**52**	**55**	**63**	**83**	35	ND	**280**	ND	**620**	**660**
Turbidity	NTU	5	S	0.085	1.9	4.4	4.1	0.2	1.3	2.6	3.2	0.4	0.15	**5.4**	**5.8**
Alkalinity	mg/l			708	708	623	621	480	485	319	320	218	214	318	312
Boron	mg/l			1.4	0.13	0.99	0.86	0.55	0.54	0.39	0.32	0.14	0.12	0.37	0.37
Bicarbonate as HCO3,calculated	mg/l			860	860	760	750	580	590	390	390	270	260	390	380
Calcium, Total, ICAP	mg/l			15	16	19	20	36	37	41	42	130	130	270	270
Carbonate as CO3, Calculated	mg/l			5.6	5.6	6.2	9.7	3.8	4.8	2.5	3.2	ND	ND	2.5	ND
Hardness (Total, as CaCO3)	mg/l			91	98	93	95	190	200	180	180	510	510	1000	990
Chloride	mg/l	500	S	47	48	56	55	43	43	53	61	340	350	**520**	**520**
Fluoride	mg/l	2.00	P	0.11	0.1	0.26	0.24	0.22	0.21	0.39	0.37	0.28	0.27	0.26	0.25
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.7	0.7	0.8	1	0.9	1	0.8	0.9	0.8	0.9	1.6	1.2
Magnesium, Total, ICAP	mg/l			13	14	11	11	24	25	19	19	46	46	78	77
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	2.7
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			20	21	13	ND	14	15	9.2	9.1	7.4	7.4	7.2	7.5
Sodium, Total, ICAP	mg/l			300	310	280	260	160	160	110	100	100	110	240	270
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	ND	2.3	66	69	**520**	**520**
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	0.051	0.101	0.094	0.188
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	2.7
Total Organic Carbon	mg/l			11.4	9.8	14.8	8.9	5	5.2	2.9	2.9	0.8	1	2.4	1.9
Carbon Dioxide	mg/l			14	14	9.9	6.2	9.5	7.7	6.4	5.1	8.8	6.8	6.4	16
General Physical Properties															
Apparent Color	ACU	15	S	**200**	**200**	**250**	**200**	**50**	**40**	**20**	**20**	3	3	3	5
Lab pH	Units			8	8	8.1	8.3	8	8.1	8	8.1	7.7	7.8	8	7.6
Odor	TON	3	S	**4**	2	**40**	**4**	2	1	**40**	**3**	**40**	**8**	**40**	**3**
pH of CaCO3 saturation(25C)	Units			7.3	7.3	7.3	7.3	7.1	7.1	7.2	7.2	6.9	6.9	6.4	6.4
pH of CaCO3 saturation(60C)	Units			6.9	6.9	6.8	6.8	6.7	6.7	6.8	6.8	6.5	6.5	6	6
Specific Conductance	umho/cm	1600	S	1280	1390	1180	1280	910	988	680	768	1400	1540	**2880**	**2840**
Metals															
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	240
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	**16**	2.2	2.6
Barium, Total, ICAP/MS	ug/l	1000	P	23	35	29	33	29	41	25	340	190	220	47	56
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.8	1.7	2.9	2.3	1.6	ND	1.2	29	ND	18	ND	1.2
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	**6.9**	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**19**	**21**
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	1.2
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.4	8.8
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.4	5.4
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	0.6
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	2.8
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND		**3.4**	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 7 of 15

Water Quality Constituents	Units	MCL	MCL Type	Inglewood #1 Zone 1 4/23/07	Inglewood #1 Zone 1 8/28/07	Inglewood #1 Zone 3 4/23/07	Inglewood #1 Zone 3 8/28/07	Inglewood #1 Zone 4 4/23/07	Inglewood #1 Zone 4 8/28/07	Inglewood #1 Zone 5 4/23/07	Inglewood #1 Zone 5 8/28/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	**2420**	**2480**	**1180**	**1110**	**1040**	764	**1420**	**1270**
Cation Sum	meq/l			43	44	18	19	13	14	20	20
Anion Sum	meq/l			43	37	19	17	13	12	20	18
Iron, Total, ICAP	mg/l	0.30	S	0.16	ND	**0.42**	**0.43**	**0.34**	**0.37**	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	21	ND	**290**	**330**	**187**	**210**	ND	ND
Turbidity	NTU	5	S	0.55	0.6	1.8	3.1	1.4	1.4	0.2	0.3
Alkalinity	mg/l			882	561	318	189	234	167	293	173
Boron	mg/l			4.9	4.5	0.42	0.4	0.2	0.18	0.24	0.23
Bicarbonate as HCO3,calculated	mg/l			1100	680	390	230	280	200	360	210
Calcium, Total, ICAP	mg/l			150	160	130	130	100	110	180	180
Carbonate as CO3, Calculated	mg/l			11	2.2	3.2	ND	2.9	ND	2.3	ND
Hardness (Total, as CaCO3)	mg/l			580	630	530	540	430	460	700	700
Chloride	mg/l	500	S	**840**	**850**	350	360	240	240	370	390
Fluoride	mg/l	2.00	P	0.35	0.32	0.57	0.47	0.48	0.42	0.31	0.28
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			2	1.3	1.4	0.7	1.2	0.8	1.4	0.8
Magnesium, Total, ICAP	mg/l			51	56	51	53	44	45	62	62
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	8.2	8.5
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			16	16	7.5	7	9.4	8.7	7.7	7.1
Sodium, Total, ICAP	mg/l			710	710	170	180	92	96	130	140
Sulfate	mg/l	500	S	63	67	130	130	95	99	130	140
Surfactants	mg/l	1	S	0.117	0.13	0.065	ND	ND	ND	0.065	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	8.2	8.5
Total Organic Carbon	mg/l			7.8	41	1.1	1.3	0.6	0.7	0.7	0.72
Carbon Dioxide	mg/l			11	22	5.1	7.5	2.9	4.1	5.9	6.9
General Physical Properties											
Apparent Color	ACU	15	S	**100**	**150**	10	10	10	10	ND	ND
Lab pH	Units			8.2	7.7	8.1	7.7	8.2	7.9	8	7.7
Odor	TON	3	S	**17**	**4**	**4**	2	**3**	2	**3**	**3**
pH of CaCO3 saturation(25C)	Units			6.2	6.4	6.7	7	7	7.1	6.6	6.9
pH of CaCO3 saturation(60C)	Units			5.8	6	6.3	6.5	6.5	6.7	6.2	6.4
Specific Conductance	umho/cm	1600	S	**4060**	**4090**	**1831**	**1900**	1317	1340	**1958**	**2000**
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	210	270	41	46	110	120	220	230
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	10	ND	ND	5.2	ND	ND	ND	7
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	5.3	ND	ND	7	8.4
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	2.4	2.2	ND	ND	ND	ND	1.8	1.8
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 8 of 15

Water Quality Constituents	Units	MCL	MCL Type	Lomita #1 Zone 1 4/18/07	Lomita #1 Zone 1 9/4/07	Lomita #1 Zone 2 4/18/07	Lomita #1 Zone 2 9/4/07	Lomita #1 Zone 3 4/18/07	Lomita #1 Zone 3 9/4/07	Lomita #1 Zone 4 4/18/07	Lomita #1 Zone 4 9/4/07	Lomita #1 Zone 5 4/18/07	Lomita #1 Zone 5 9/4/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	**1470**	**1560**	988	972	896	850	556	626	**1370**	**1470**
Cation Sum	meq/l			23	23	16	16	15	15	11	11	22	22
Anion Sum	meq/l			22	21	15	15	16	14	10	12	21	20
Iron, Total, ICAP	mg/l	0.30	S	0.18	0.17	ND	ND	0.03	0.023	ND	ND	0.12	0.12
Manganese, Total, ICAP/MS	ug/l	50	S	**350**	**360**	**150**	**170**	**130**	**130**	**90**	**94**	**274**	**280**
Turbidity	NTU	5	S	0.6	1	**6.4**	2.5	2.1	1.3	1.6	1.8	0.05	0.5
Alkalinity	mg/l			198	130	239	185	267	213	239	278	192	131
Boron	mg/l			0.63	0.61	0.41	0.43	0.4	0.39	0.38	0.37	0.55	0.54
Bicarbonate as HCO3,calculated	mg/l			240	160	290	230	320	260	290	340	230	160
Calcium, Total, ICAP	mg/l			170	180	110	110	100	99	65	67	160	170
Carbonate as CO3, Calculated	mg/l			ND	ND	2.4	ND	2.6	ND	3	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			630	650	400	410	370	370	240	250	590	620
Chloride	mg/l	500	S	**640**	**660**	330	380	370	330	180	210	**590**	**600**
Fluoride	mg/l	2.00	P	0.1	0.15	0.15	0.19	0.12	0.17	0.22	0.26	0.089	0.12
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			1.2	0.6	1.2	0.8	1.2	0.8	1	0.8	1.1	0.6
Magnesium, Total, ICAP	mg/l			49	48	31	32	29	29	19	19	46	48
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			14	14	12	11	11	10	8.2	7.8	14	14
Sodium, Total, ICAP	mg/l			230	230	170	170	180	170	130	130	220	220
Sulfate	mg/l	500	S	11	12	26	28	28	26	10	13	21	23
Surfactants	mg/l	1	S	0.051	0.078	ND	0.054	ND	0.066	ND	ND	0.083	0.07
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			0.8	1.1	1	1.6	2.2	1.6	2.3	2.4	0.7	0.96
Carbon Dioxide	mg/l			3.9	6.6	3.8	6	4.2	6.8	3	7	3.8	6.6
General Physical Properties													
Apparent Color	ACU	15	S	10	10	10	**15**	10	**15**	**30**	**25**	5	3
Lab pH	Units			8	7.6	8.1	7.8	8.1	7.8	8.2	7.9	8	7.6
Odor	TON	3	S	**8**	**3**	**17**	**3**	**17**	**4**	**17**	**4**	**17**	2
pH of CaCO3 saturation(25C)	Units			6.8	7	6.9	7	6.9	7	7.2	7.1	6.9	7
pH of CaCO3 saturation(60C)	Units			6.4	6.5	6.5	6.6	6.5	6.6	6.7	6.6	6.4	6.6
Specific Conductance	umho/cm	1600	S	**2130**	**2460**	**1700**	**1700**	1350	1560	860	1140	**2280**	**2360**
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	98	120	63	75	61	67	37	44	92	110
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	4.7	ND	ND	ND	3.7	ND	4.7
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	6
Selenium, Total, ICAP/MS	ug/l	50	P	8.5	9.7	ND	5.6	ND	ND	ND	ND	ND	9.1
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 9 of 15

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #3 Zone 1 4/11/07	Long Beach #3 Zone 1 9/10/07	Long Beach #3 Zone 2 4/11/07	Long Beach #3 Zone 2 9/10/07	Long Beach #3 Zone 3 4/11/07	Long Beach #3 Zone 3 9/10/07	Long Beach #3 Zone 4 4/11/07	Long Beach #3 Zone 4 9/10/07	Long Beach #3 Zone 5 4/11/07	Long Beach #3 Zone 5 9/10/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	446	468	238	240	230	266	**1890**	**1990**	**2570**	**1840**
Cation Sum	meq/l			7.4	7.9	3.7	4.2	4.1	4.1	24	24	29	30
Anion Sum	meq/l			8	8	3.8	4	4.3	4.4	25	24	30	27
Iron, Total, ICAP	mg/l	0.30	S	0.05	0.042	ND	0.027	0.026	0.025	0.096	0.095	0.26	0.25
Manganese, Total, ICAP/MS	ug/l	50	S	13	13	9.6	9.7	15	15	**260**	**260**	**380**	**390**
Turbidity	NTU	5	S	0.95	0.7	0.15	0.15	0.1	0.15	0.35	0.55	1.8	1.5
Alkalinity	mg/l			377	375	138	147	166	171	129	99	139	80
Boron	mg/l			0.36	0.38	0.13	0.13	0.13	0.13	0.11	0.11	0.1	0.11
Bicarbonate as HCO3,calculated	mg/l			460	450	170	180	200	210	160	120	170	97
Calcium, Total, ICAP	mg/l			11	11	17	21	22	21	270	260	360	360
Carbonate as CO3, Calculated	mg/l			9.5	7.3	2.2	2.9	2.6	2.7	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			42	42	55	67	71	67	970	940	1200	1200
Chloride	mg/l	500	S	17	17	20	19	34	34	**740**	**730**	**900**	**860**
Fluoride	mg/l	2.00	P	0.52	0.56	0.35	0.39	0.29	0.35	0.15	0.19	0.15	0.18
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.6	0.3	0.5	0.5	0.5	1.2	0.7	1.3	0.8
Magnesium, Total, ICAP	mg/l			3.5	3.5	3	3.6	3.8	3.6	72	71	80	82
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.4	3.6	2	2.6	2.4	2.5	11	12	8.9	9.3
Sodium, Total, ICAP	mg/l			150	160	58	63	61	63	100	110	98	110
Sulfate	mg/l	500	S	ND	ND	23	23	ND	ND	66	66	70	70
Surfactants	mg/l	1	S	ND	0.052	ND	ND	ND	ND	0.06	0.056	0.08	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			7.4	8.1	1.3	1.4	2.6	2.9	0.56	0.8	0.6	0.92
Carbon Dioxide	mg/l			2.4	2.9	ND	ND	ND	ND	2.6	3.9	2.8	3.2
General Physical Properties													
Apparent Color	ACU	15	S	**75**	**60**	**15**	**15**	**25**	**20**	ND	3	5	5
Lab pH	Units			8.5	8.4	8.3	8.4	8.3	8.3	8	7.7	8	7.7
Odor	TON	3	S	**8**	**3**	2	1	**3**	2	**40**	2	**40**	**3**
pH of CaCO3 saturation(25C)	Units			7.7	7.8	8	7.9	7.8	7.8	6.8	7	6.7	6.9
pH of CaCO3 saturation(60C)	Units			7.3	7.3	7.5	7.4	7.4	7.4	6.4	6.5	6.2	6.5
Specific Conductance	umho/cm	1600	S	740	746	390	375	410	412	**2530**	**2560**	**3030**	**3030**
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	8.8	9.1	15	14	9.7	9.9	91	94	150	170
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.3	ND	ND	ND	ND	ND	ND	1.7	ND	2.1
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	10	ND	13
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	13	ND	16
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND	**5.2**	**5.2**	**7.6**	**6.4**
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 10 of 15

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #8 Zone 1 4/25/07	Long Beach #8 Zone 2 4/25/07	Long Beach #8 Zone 3 4/26/07	Long Beach #8 Zone 4 4/26/07	Long Beach #8 Zone 5 4/26/07	Long Beach #8 Zone 6 4/26/07
Major Minerals									
Total Dissolved Solid (TDS)	mg/l	1000	S	676	598	864	**1350**	**1070**	**1100**
Cation Sum	meq/l			11	9.9	15	23	18	17
Anion Sum	meq/l			11	10	15	24	18	17
Iron, Total, ICAP	mg/l	0.30	S	0.21	0.17	0.2	0.21	0.22	**0.34**
Manganese, Total, ICAP/MS	ug/l	50	S	18	23	36	36	**67**	**270**
Turbidity	NTU	5	S	0.8	1.6	0.55	0.4	1	2.3
Alkalinity	mg/l			536	464	630	394	312	205
Boron	mg/l			1.2	0.79	1.3	1.1	0.61	0.21
Bicarbonate as HCO3,calculated	mg/l			650	560	770	480	380	250
Calcium, Total, ICAP	mg/l			7.2	8.8	11	49	63	110
Carbonate as CO3, Calculated	mg/l			13	12	6.3	3.9	4.9	ND
Hardness (Total, as CaCO3)	mg/l			27	34	49	270	270	420
Chloride	mg/l	500	S	24	37	89	**560**	420	450
Fluoride	mg/l	2.00	P	0.95	0.95	0.68	0.2	0.22	0.5
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.7	0.7	0.6	1	1.2	0.9
Magnesium, Total, ICAP	mg/l			2.1	3	5.2	35	28	35
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2	3.9	7.2	11	9.2	6.3
Sodium, Total, ICAP	mg/l			240	210	310	410	280	190
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	21
Surfactants	mg/l	1	S	ND	ND	ND	0.063	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			14.6	15	24.1	19.4	12.6	0.6
Carbon Dioxide	mg/l			3.4	2.9	10	6.3	3.1	5.2
General Physical Properties									
Apparent Color	ACU	15	S	**500**	**200**	**300**	**80**	**40**	10
Lab pH	Units			8.5	8.5	8.1	8.1	8.3	7.9
Odor	TON	3	S	**67**	**67**	**40**	**67**	**40**	**40**
pH of CaCO3 saturation(25C)	Units			7.8	7.8	7.5	7.1	7.1	7
pH of CaCO3 saturation(60C)	Units			7.3	7.3	7.1	6.6	6.6	6.6
Specific Conductance	umho/cm	1600	S	1005	940	1360	**2510**	**1858**	**1860**
Metals									
Aluminum, Total, ICAP/MS	ug/l	1000	P	34	49	21	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	1.5	ND	1.8	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	7.2	7	12	21	17	100
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.5	1.4	2	ND	1.4	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	3.6	7.4	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	5.4	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 11 of 15

Water Quality Constituents	Units	MCL	MCL Type	PM-3 Madrid Zone 1 4/17/07	PM-3 Madrid Zone 1 8/30/07	PM-3 Madrid Zone 2 4/17/07	PM-3 Madrid Zone 2 8/30/07	PM-3 Madrid Zone 3 4/17/07	PM-3 Madrid Zone 3 8/30/07	PM-3 Madrid Zone 4 4/17/07	PM-3 Madrid Zone 4 8/30/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	396	394	276	322	678	634	972	848
Cation Sum	meq/l			6.9	6.9	5	5.4	10	10	14	14
Anion Sum	meq/l			7.2	7.1	5.1	5.6	10	10	15	14
Iron, Total, ICAP	mg/l	0.30	S	0.057	0.05	0.11	0.12	0.1	0.099	**0.44**	**0.4**
Manganese, Total, ICAP/MS	ug/l	50	S	31	29	38	39	**55**	**55**	**310**	**300**
Turbidity	NTU	5	S	1.8	0.6	0.2	0.3	1.1	1.9	2.9	3.3
Alkalinity	mg/l			327	318	205	203	196	195	210	197
Boron	mg/l			0.34	0.34	0.12	0.11	0.14	0.14	0.36	0.35
Bicarbonate as HCO3,calculated	mg/l			400	390	250	250	240	240	260	240
Calcium, Total, ICAP	mg/l			12	12	37	42	87	87	110	110
Carbonate as CO3, Calculated	mg/l			5.2	6.4	ND	ND	2.5	ND	2.1	ND
Hardness (Total, as CaCO3)	mg/l			69	69	140	150	320	320	410	410
Chloride	mg/l	500	S	24	24	35	54	220	220	340	320
Fluoride	mg/l	2.00	P	0.27	0.32	0.39	0.41	0.32	0.35	0.27	0.31
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.5	0.6	0.5	0.6	1.1	0.8	1.1	0.7
Magnesium, Total, ICAP	mg/l			9.6	9.5	11	12	25	25	33	32
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			12	12	3.1	3.2	5.1	4.8	6.7	6.4
Sodium, Total, ICAP	mg/l			120	120	50	52	84	83	140	130
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	41	33
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			2.9	3.2	0.5	0.55	0.8	0.72	0.9	1
Carbon Dioxide	mg/l			3.3	2.5	4.1	4.1	2.5	5	3.4	7.9
General Physical Properties											
Apparent Color	ACU	15	S	**40**	**20**	5	3	3	5	10	10
Lab pH	Units			8.3	8.4	8	8	8.2	7.9	8.1	7.7
Odor	TON	3	S	**3**	**3**	2	**3**	**8**	**3**	**8**	**3**
pH of CaCO3 saturation(25C)	Units			7.8	7.8	7.5	7.4	7.1	7.1	7	7
pH of CaCO3 saturation(60C)	Units			7.3	7.3	7	7	6.7	6.7	6.6	6.6
Specific Conductance	umho/cm	1600	S	550	672	430	566	1100	1100	1260	1450
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	4.5	4.4
Barium, Total, ICAP/MS	ug/l	1000	P	22	23	17	20	59	63	77	81
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	4.6	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	1.3	0.95
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	**6.9**	5.7	4.6	1.8
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	1.1	1	1.7	1.2
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	0.5	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 12 of 15

Water Quality Constituents	Units	MCL	MCL Type	PM-4 Mariner Zone 1 4/22/07	PM-4 Mariner Zone 1 8/26/07	PM-4 Mariner Zone 2 4/22/07	PM-4 Mariner Zone 2 8/26/07	PM-4 Mariner Zone 3 4/22/07	PM-4 Mariner Zone 3 8/26/07	PM-4 Mariner Zone 4 4/22/07	PM-4 Mariner Zone 4 8/26/07
Major Minerals											
Total Dissolved Solid (TDS)	mg/l	1000	S	360	342	**13900**	**1390**	606	618	632	652
Cation Sum	meq/l			6	5.7	200	200	9.4	9.1	10	10
Anion Sum	meq/l			6	6.5	190	220	9.6	10	11	11
Iron, Total, ICAP	mg/l	0.30	S	0.076	0.063	ND	ND	0.03	0.027	0.14	0.13
Manganese, Total, ICAP/MS	ug/l	50	S	33	33	**1200**	**1079**	33	34	**71**	**75**
Turbidity	NTU	5	S	0.65	0.15	1.5	1.5	0.75	0.9	0.5	0.7
Alkalinity	mg/l			259	287	157	77	155	179	200	205
Boron	mg/l			0.17	0.17	ND	ND	0.3	0.24	0.25	0.23
Bicarbonate as HCO3,calculated	mg/l			310	350	190	94	190	220	240	250
Calcium, Total, ICAP	mg/l			28	26	1500	1500	44	39	74	71
Carbonate as CO3, Calculated	mg/l			4	3.6	ND	ND	2.5	2.3	2.5	2
Hardness (Total, as CaCO3)	mg/l			120	110	5600	5600	160	140	270	260
Chloride	mg/l	500	S	28	28	**6000**	**7000**	98	110	120	120
Fluoride	mg/l	2.00	P	0.43	0.36	0.15	0.12	0.5	0.42	0.34	0.3
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.7	1.6	1.2	0.8	0.7	1	0.9
Magnesium, Total, ICAP	mg/l			12	11	450	440	12	11	20	19
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			7.1	6.4	50	49	5.8	5.3	6.2	5.6
Sodium, Total, ICAP	mg/l			80	76	1900	2100	140	140	110	110
Sulfate	mg/l	500	S	ND	ND	**780**	**770**	180	180	170	170
Surfactants	mg/l	1	S	ND	ND	0.186	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			1.6	1.6	1	1.2	1.2	2.4	0.9	1.1
Carbon Dioxide	mg/l			2.5	3.6	7.8	4.9	ND	2.3	2.5	3.3
General Physical Properties											
Apparent Color	ACU	15	S	10	10	5	5	**30**	**25**	5	3
Lab pH	Units			8.3	8.2	7.6	7.5	8.3	8.2	8.2	8.1
Odor	TON	3	S	**4**	**3**	**4**	**3**	**17**	**4**	**4**	**4**
pH of CaCO3 saturation(25C)	Units			7.5	7.5	6	6.3	7.5	7.5	7.2	7.2
pH of CaCO3 saturation(60C)	Units			7.1	7	5.5	5.9	7.1	7.1	6.7	6.8
Specific Conductance	umho/cm	1600	S	550	604	**17900**	**18200**	1000	1010	1059	1090
Metals											
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	2.9	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	21	20	310	280	72	72	51	54
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	**63**	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 13 of 15

Water Quality Constituents	Units	MCL	MCL Type	Westchester #1 Zone 1 4/18/07	Westchester #1 Zone 1 9/13/07	Westchester #1 Zone 2 4/18/07	Westchester #1 Zone 2 9/13/07	Westchester #1 Zone 3 4/18/07	Westchester #1 Zone 3 9/13/07	Westchester #1 Zone 4 4/18/07	Westchester #1 Zone 4 9/13/07	Westchester #1 Zone 5 4/18/07	Westchester #1 Zone 5 9/13/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	**1340**	**1310**	696	738	592	598	578	582	538	558
Cation Sum	meq/l			23	22	12	13	11	11	11	11	9.9	10
Anion Sum	meq/l			24	22	14	13	11	11	10	10	9.6	9.7
Iron, Total, ICAP	mg/l	0.30	S	0.28	0.26	0.13	0.13	0.26	0.25	0.15	0.14	**0.31**	**0.31**
Manganese, Total, ICAP/MS	ug/l	50	S	42	49	**51**	**56**	**170**	**170**	**130**	**140**	**231**	**210**
Turbidity	NTU	5	S	1.3	0.45	0.55	0.8	0.3	0.45	0.3	0.35	1.2	0.95
Alkalinity	mg/l			980	912	586	538	446	448	358	349	303	310
Boron	mg/l			2.3	2.1	0.83	0.87	0.41	0.43	0.24	0.23	0.22	0.22
Bicarbonate as HCO3,calculated	mg/l			1200	1100	710	650	540	550	440	420	370	380
Calcium, Total, ICAP	mg/l			17	20	30	31	52	52	71	74	67	70
Carbonate as CO3, Calculated	mg/l			20	9	9.2	11	5.6	3.6	4.5	5.4	3.8	4.9
Hardness (Total, as CaCO3)	mg/l			100	110	150	150	230	230	300	310	280	290
Chloride	mg/l	500	S	140	130	68	70	62	63	63	63	65	66
Fluoride	mg/l	2.00	P	0.24	0.29	0.24	0.27	0.25	0.31	0.24	0.26	0.38	0.33
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			1.3	1	1.2	1.3	1.2	1	1.2	1.3	1.1	1.3
Magnesium, Total, ICAP	mg/l			15	15	18	18	24	24	30	30	27	28
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			18	18	15	14	12	12	9.5	9.5	7.5	7.7
Sodium, Total, ICAP	mg/l			460	450	210	220	140	140	100	96	94	91
Sulfate	mg/l	500	S	ND	5.1	ND	ND	8.7	ND	73	74	79	79
Surfactants	mg/l	1	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			29.1	28	7.7	9.03	3.1	3.8	1.8	1.9	1.4	1.5
Carbon Dioxide	mg/l			7.8	14	5.8	4.2	5.6	9	4.6	3.5	3.8	3.1
General Physical Properties													
Apparent Color	ACU	15	S	**500**	**500**	**60**	**80**	**30**	**25**	**20**	10	10	10
Lab pH	Units			8.4	8.1	8.3	8.4	8.2	8	8.2	8.3	8.2	8.3
Odor	TON	3	S	**8**	**4**	**8**	**3**	**40**	**3**	**4**	1	**8**	**3**
pH of CaCO3 saturation(25C)	Units			7.1	7.1	7.1	7.1	7	7	7	7	7.1	7
pH of CaCO3 saturation(60C)	Units			6.7	6.7	6.7	6.7	6.5	6.5	6.5	6.5	6.6	6.6
Specific Conductance	umho/cm	1600	S	**2010**	**2040**	1170	1220	990	1030	970	983	910	938
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	1.1	ND	1.1	1.6	ND	ND	ND	1.9
Barium, Total, ICAP/MS	ug/l	1000	P	85	96	130	130	65	70	69	73	64	59
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	3.1	3.3	1.2	ND	ND	5.4	ND	4.4	ND	1.4
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND		ND		ND		ND		ND	
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 14 of 15

Water Quality Constituents	Units	MCL	MCL Type	Wilmington #1 Zone 1 4/9/07	Wilmington #1 Zone 1 8/27/07	Wilmington #1 Zone 2 4/9/07	Wilmington #1 Zone 2 8/27/07	Wilmington #1 Zone 3 4/9/07	Wilmington #1 Zone 3 8/27/07	Wilmington #1 Zone 4 4/9/07	Wilmington #1 Zone 4 8/27/07	Wilmington #1 Zone 5 4/9/07	Wilmington #1 Zone 5 8/27/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	670	662	**1570**	**1630**	**2130**	**2010**	**1410**	**1360**	748	904
Cation Sum	meq/l			11	9.9	22	23	31	30	23	21	12	15
Anion Sum	meq/l			11	10	21	23	31	30	23	23	11	14
Iron, Total, ICAP	mg/l	0.30	S	ND	ND	0.043	0.043	ND	ND	0.022	ND	0.029	**0.4**
Manganese, Total, ICAP/MS	ug/l	50	S	23	23	25	28	8.8	ND	19	ND	27	**120**
Turbidity	NTU	5	S	0.1	0.25	0.15	0.3	0.3	0.2	0.15	0.2	0.1	**6.3**
Alkalinity	mg/l			150	139	140	85	160	111	150	151	140	151
Boron	mg/l			0.19	0.19	0.25	0.3	0.26	0.25	0.26	0.25	0.18	0.21
Bicarbonate as HCO3,calculated	mg/l			180	170	170	100	190	140	180	180	170	180
Calcium, Total, ICAP	mg/l			64	59	200	200	210	210	120	100	94	100
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			250	230	700	690	740	740	480	410	370	390
Chloride	mg/l	500	S	270	270	**600**	**680**	**960**	**950**	**520**	**510**	160	260
Fluoride	mg/l	2.00	P	0.16	0.16	0.08	0.09	0.078	0.09	0.11	0.12	0.16	0.15
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.8	0.7	1.2	0.8	1.2	0.3	1.1	0.7	1	0.5
Magnesium, Total, ICAP	mg/l			21	19	49	47	53	52	43	38	33	35
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			7.9	7.3	7.2	7.5	9.5	9	8.5	7.8	5.9	6.7
Sodium, Total, ICAP	mg/l			130	120	180	200	360	340	310	300	110	150
Sulfate	mg/l	500	S	ND	ND	74	85	34	32	250	250	200	170
Surfactants	mg/l	1	S	0.34	0.46	0.38	0.44	0.39	0.32	0.15	0.19	0.13	**1**
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			3	3.4	2.2	2.5	1.9	2.4	1.8	2.2	2.4	8.1
Carbon Dioxide	mg/l			ND	2.2	2.2	2.1	3.1	12	ND	3.7	ND	5.9
General Physical Properties													
Apparent Color	ACU	15	S	3	3	3	3	10	10	3	5	3	10
Lab pH	Units			8.2	8.1	8.1	7.9	8	7.3	8.2	7.9	8.2	7.7
Odor	TON	3	S	**17**	**100**	**40**	**40**	**17**	**67**	**4**	**17**	**17**	**100**
pH of CaCO3 saturation(25C)	Units			7.4	7.4	6.9	7.1	6.8	7	7.1	7.2	7.2	7.2
pH of CaCO3 saturation(60C)	Units			6.9	7	6.5	6.7	6.4	6.5	6.7	6.7	6.8	6.7
Specific Conductance	umho/cm	1600	S	1123	1120	**2290**	**2560**	**3240**	**3400**	**2360**	**2280**	1162	1510
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	11	ND	11	ND	28	31	46	47	53	120
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	4.6
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			**110**		**130**		**148**		**32**		**34**	
Di-Isopropyl Ether	ug/l			3.4	3.5	22	21	6.5	6	ND	ND	ND	4.1
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2006/2007
Page 15 of 15

Water Quality Constituents	Units	MCL	MCL Type	Wilmington #2 Zone 1 4/10/07	Wilmington #2 Zone 1 8/21/07	Wilmington #2 Zone 2 4/10/07	Wilmington #2 Zone 2 8/21/07	Wilmington #2 Zone 3 4/10/07	Wilmington #2 Zone 3 8/21/07	Wilmington #2 Zone 4 4/10/07	Wilmington #2 Zone 4 8/21/07	Wilmington #2 Zone 5 4/10/07	Wilmington #2 Zone 5 8/21/07
Major Minerals													
Total Dissolved Solid (TDS)	mg/l	1000	S	520	536	**1570**	**1470**	410	364	**1550**	**1410**	**6500**	**5900**
Cation Sum	meq/l			8.7	8.7	25	25	6.4	6.3	24	24	100	100
Anion Sum	meq/l			8.9	9.2	25	26	6.6	6.4	25	24	98	97
Iron, Total, ICAP	mg/l	0.30	S	0.071	0.07	0.073	0.072	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	4	4.1	13	13	ND	**75**	12	ND	**88**	**85**
Turbidity	NTU	5	S	0.5	0.65	0.6	0.4	1.5	1	1.2	0.8	0.8	0.6
Alkalinity	mg/l			380	400	480	510	180	178	262	275	178	160
Boron	mg/l			0.69	0.65	1.8	1.7	ND	0.18	0.61	0.58	0.64	0.63
Bicarbonate as HCO3,calculated	mg/l			460	480	580	620	220	220	320	340	220	190
Calcium, Total, ICAP	mg/l			3.2	3.2	32	32	23	23	77	75	360	340
Carbonate as CO3, Calculated	mg/l			9.5	7.8	2.4	6.4	2.3	2.3	2.6	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			17	17	180	170	94	92	340	320	1600	1500
Chloride	mg/l	500	S	43	41	**560**	**560**	106	99	**660**	**640**	**3000**	**3000**
Fluoride	mg/l	2.00	P	0.97	1	0.32	0.36	0.25	0.3	0.49	0.51	0.2	0.22
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.2	0.1	0.6	1.1	0.5	0.5	1	0.6	1.4	1.1
Magnesium, Total, ICAP	mg/l			2.3	2.3	24	23	8.8	8.4	35	33	170	150
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1.00	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			4.8	4.7	12	12	5.1	4.7	9.8	9.6	23	25
Sodium, Total, ICAP	mg/l			190	190	480	490	100	95	390	400	1600	1600
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	41	ND	470	450
Surfactants	mg/l	1	S	ND	ND	ND	0.097	ND	ND	0.054	0.076	0.083	0.15
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			11	11	19	19	2.8	2.8	9.4	6.1	1.3	1.7
Carbon Dioxide	mg/l			2.4	3.1	15	6.4	2.3	2.3	4.2	14	4.5	6.2
General Physical Properties													
Apparent Color	ACU	15	S	**300**	**300**	**125**	**50**	**20**	**20**	**50**	**50**	**15**	10
Lab pH	Units			8.5	8.4	7.8	8.2	8.2	8.2	8.1	7.6	7.9	7.7
Odor	TON	3	S	**8**	**16**	**40**	**8**	**4**	**16**	**17**	**4000**	**40**	**16**
pH of CaCO3 saturation(25C)	Units			8.3	8.3	7.2	7.1	7.7	7.7	7.1	7	6.5	6.6
pH of CaCO3 saturation(60C)	Units			7.8	7.8	6.7	6.7	7.3	7.3	6.6	6.6	6.1	6.2
Specific Conductance	umho/cm	1600	S	830	859	**2590**	**2630**	680	664	**2540**	**2570**	**9940**	**9730**
Metals													
Aluminum, Total, ICAP/MS	ug/l	1000	P	21	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	10	P	ND	ND	ND	ND	ND	**10**	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	4.3	5.1	46	51	10	300	48	55	76	76
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.6	1.5	2.3	1.1	ND	ND	1.7	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	13		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TBA	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tert Amyl Methyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Tert Butyl Ether	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

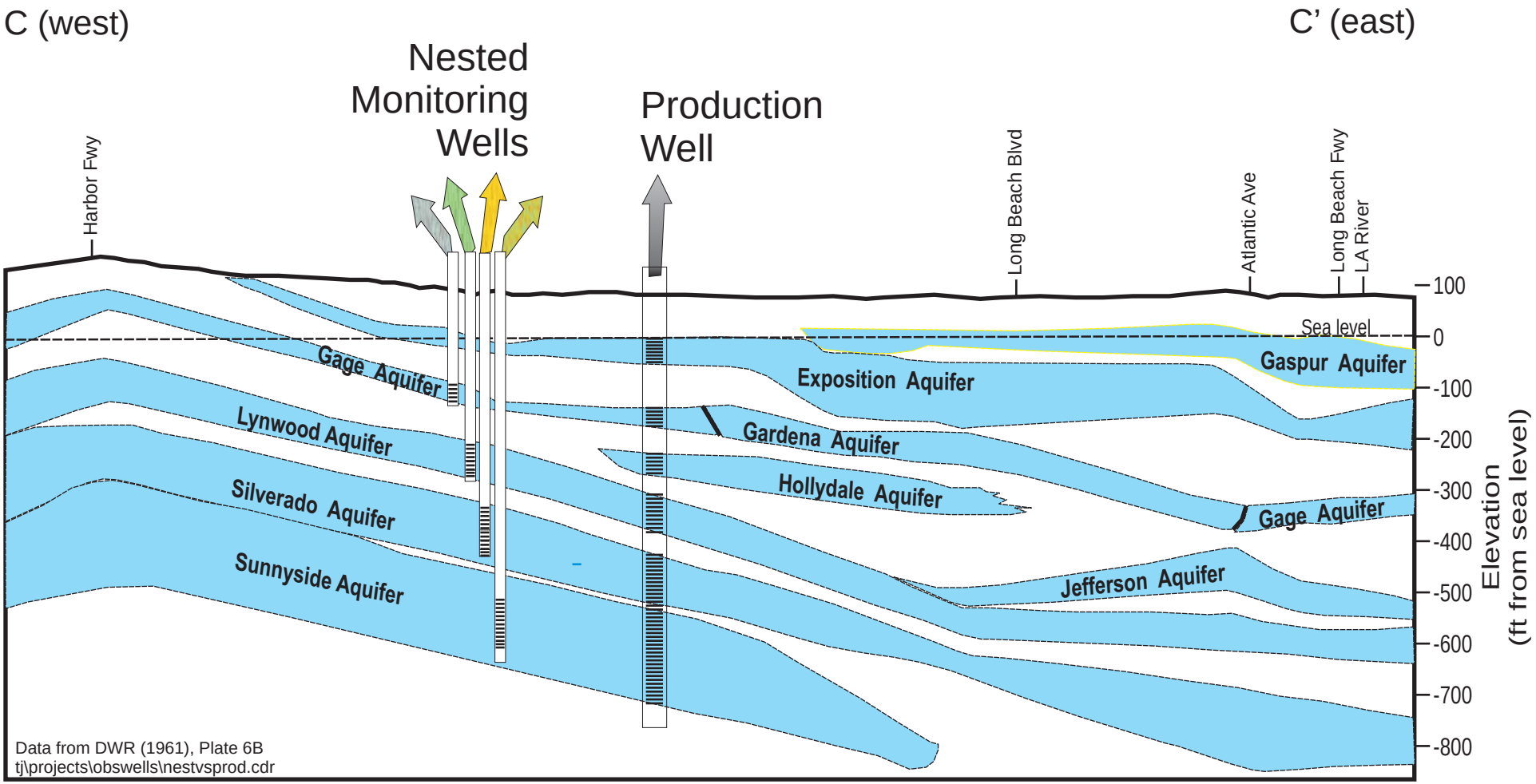
MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

FIGURES


Water Replenishment District of Southern California
West
Los Angeles Intl
Central
Coast
Basin
Basin
Los Angeles Forebay
Montebello Forebay
Whittier Area
NEWPORT-INGLEWOOD UPLIFT
NON-PRESSURE AREA
PRESSURE AREA
NON-PRESSURE AREA
PRESSURE AREA
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Long Beach Airport
SANTA MONICA
CULVER CITY
LOS ANGELES
INGLEWOOD
HAWTHORNE
EL SEGUNDO
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
GARDENA
LAWNDALE
COMPTON
LYNWOOD
CARSON
LONG BEACH
LAKEWOOD
PALOS VERDES ESTATES
LOMITA
ROLLING HILLS ESTATES
ROLLING HILLS
RANCHO PALOS VERDES
SIGNAL HILL
HAWAIIAN GARDENS
ARTESIA
CERRITOS
BELLFLOWER
PARAMOUNT
NORWALK
LA MIRADA
DOWNEY
SANTA FE SPRINGS
SOUTH GATE
BELL
BELL GARDENS
CUDAHY
HUNTINGTON PARK
MAYWOOD
VERNON
COMMERCE
MONTEBELLO
MONTEREY PARK
SOUTH EL MONTE
WHITTIER
LA HABRA HEIGHTS
LA PUENTE
WEST COVINA
INDUSTRY
10
110
105
405
710
605
91
60
5
22

Figure 1.1

NESTED WELLS versus PRODUCTION WELLS FOR AQUIFER-SPECIFIC DATA



Production wells are typically perforated across multiple aquifers producing an average water quality. Nested monitoring wells are screened in a portion of a specific aquifer, providing water quality and water level information for the specific zone.

Figure 1.2

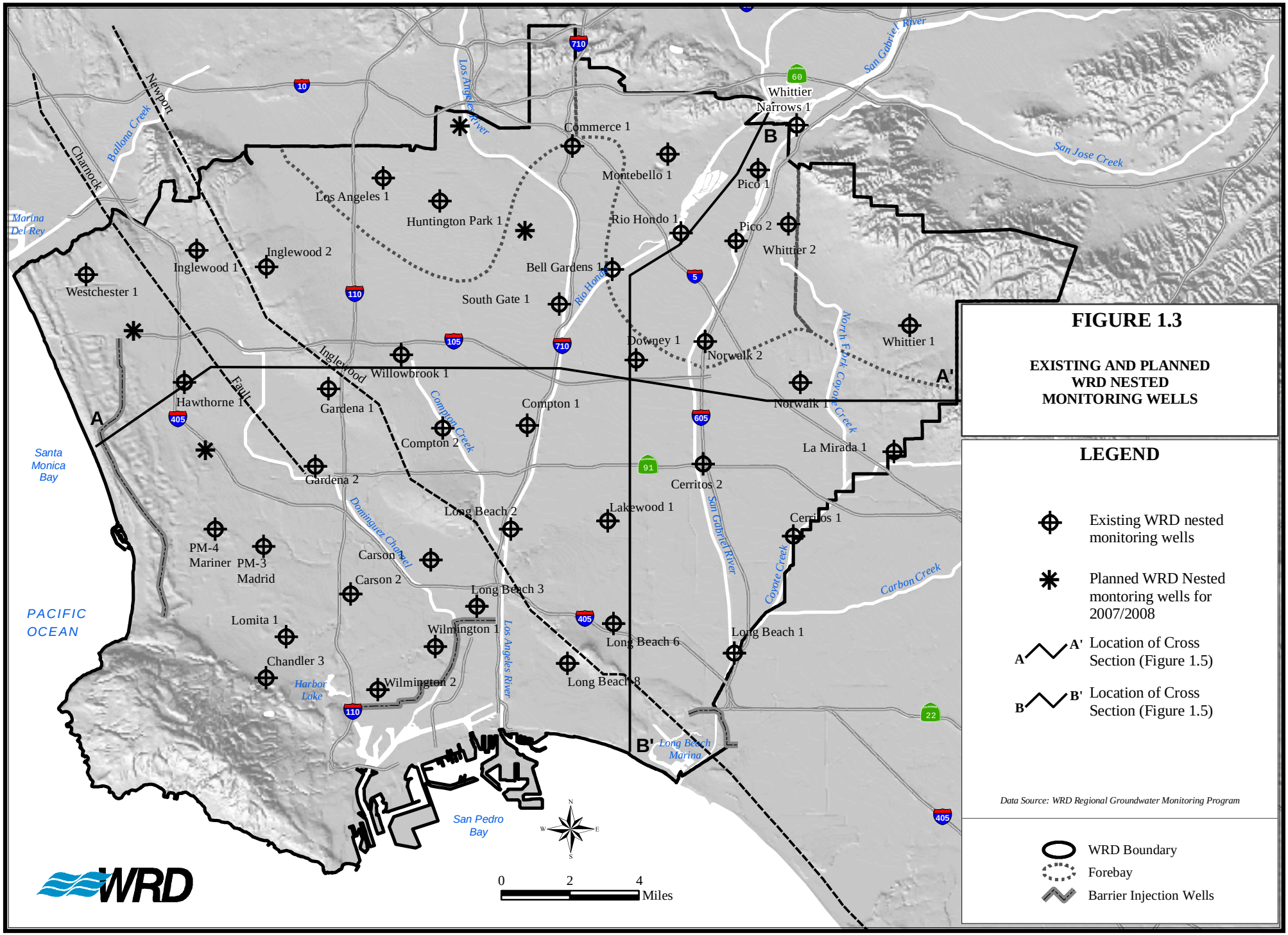
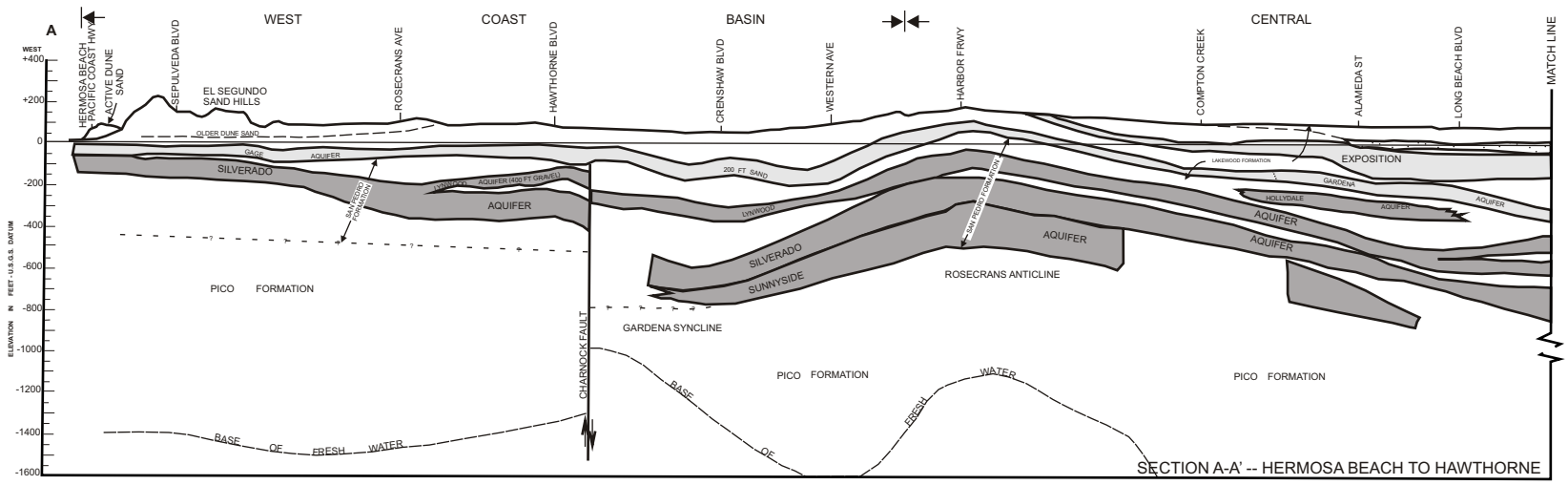
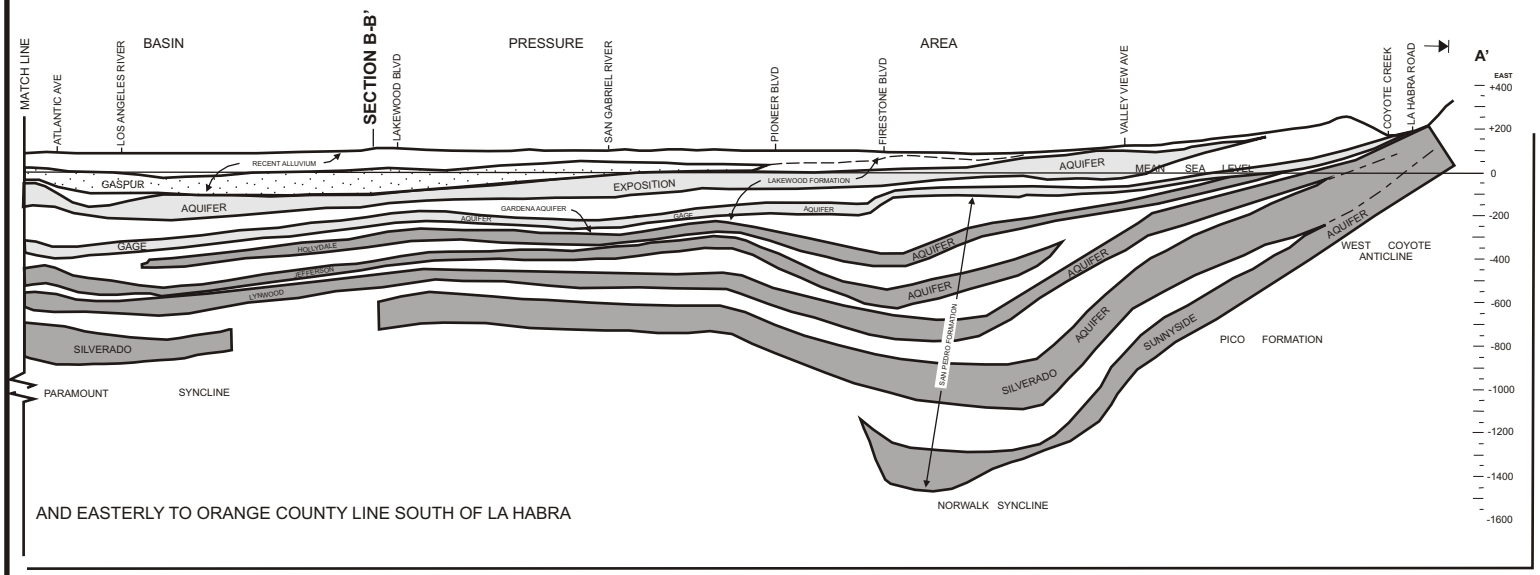


FIGURE 1.3
EXISTING AND PLANNED WRD NESTED MONITORING WELLS
LEGEND
Existing WRD nested monitoring wells
Planned WRD Nested montoring wells for 2007/2008
A A' Location of Cross Section (Figure 1.5)
B B' Location of Cross Section (Figure 1.5)
Data Source: WRD Regional Groundwater Monitoring Program
WRD Boundary
Forebay
Barrier Injection Wells
Commerce 1
Montebello 1
Los Angeles 1
Huntington Park 1
Rio Hondo 1
Pico 1
Pico 2
Whittier 2
Whittier Narrows 1
Whittier 1
Inglewood 1
Inglewood 2
Westchester 1
Bell Gardens 1
South Gate 1
Downey 1
Norwalk 2
Norwalk 1
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Compton 1
Compton 2
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
PM-4 Mariner
PM-3 Madrid
Lomita 1
Wilmington 1
Wilmington 2
Chandler 3
Harbor Lake
Long Beach Marina
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Marina Del Rey
Ballona Creek
Newport
Charnock
Inglewood Fault
Dominguez Channel
Compton Creek
Los Angeles River
Rio Hondo
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
A
A'
B
B'
0 2 4 Miles



SECTION A-A' -- HERMOSA BEACH TO HAWTHORNE



AND EASTERLY TO ORANGE COUNTY LINE SOUTH OF LA HABRA

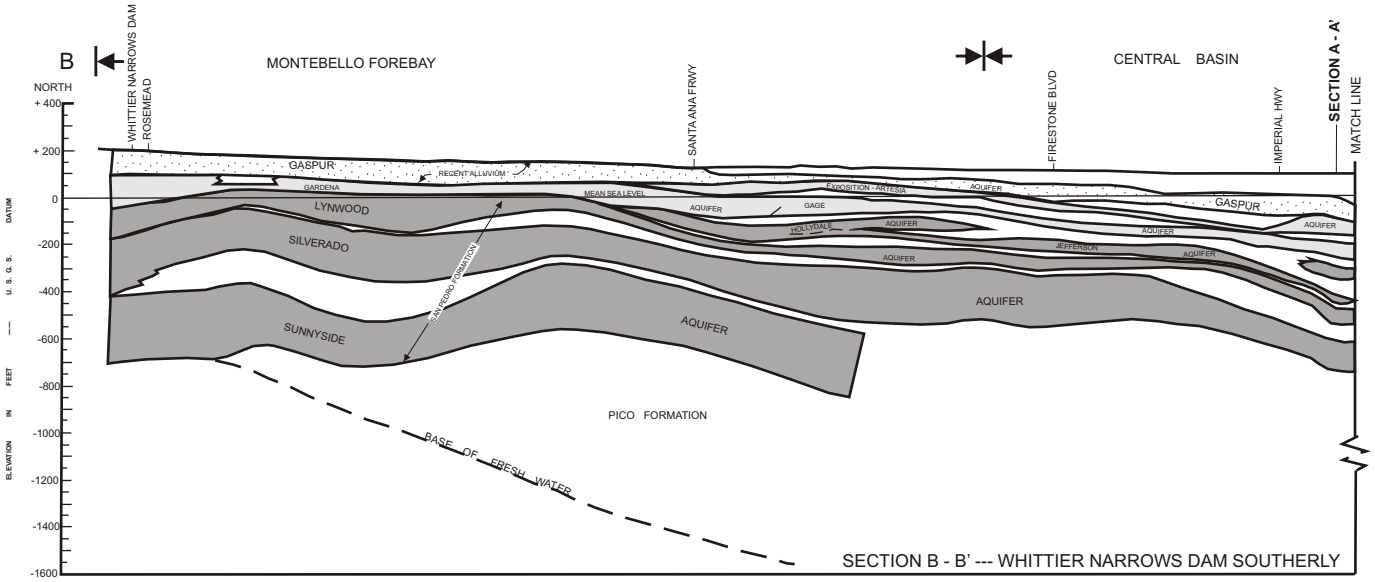
LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN THE SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO AND SUNNYSIDE AQUIFERS)

IDEALIZED GEOLOGIC CROSS SECTION AA'

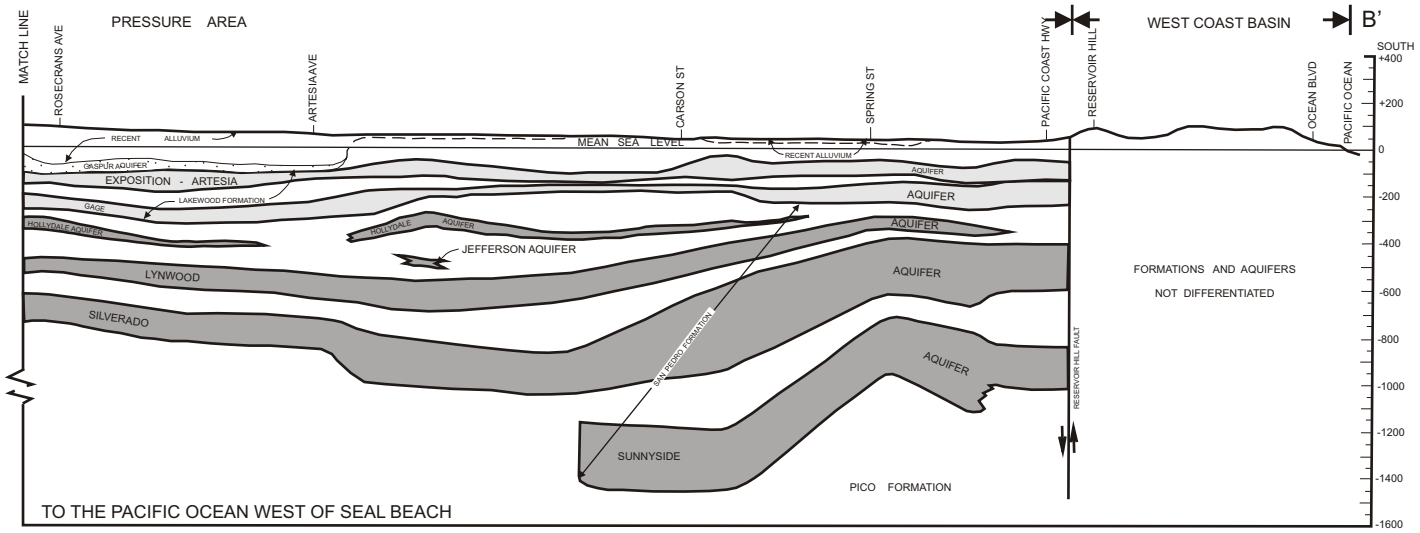
Adapted from
CDWR Bull. 104 App. B

FIGURE 1.4



LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN THE SAN PEDRO FORMATIO (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO AND SUNNYSIDE AQUIFERS)



IDEALIZED GEOLOGIC CROSS SECTION BB'

Adapted from
CDWR Bull. 104 App. B

FIGURE 1.5

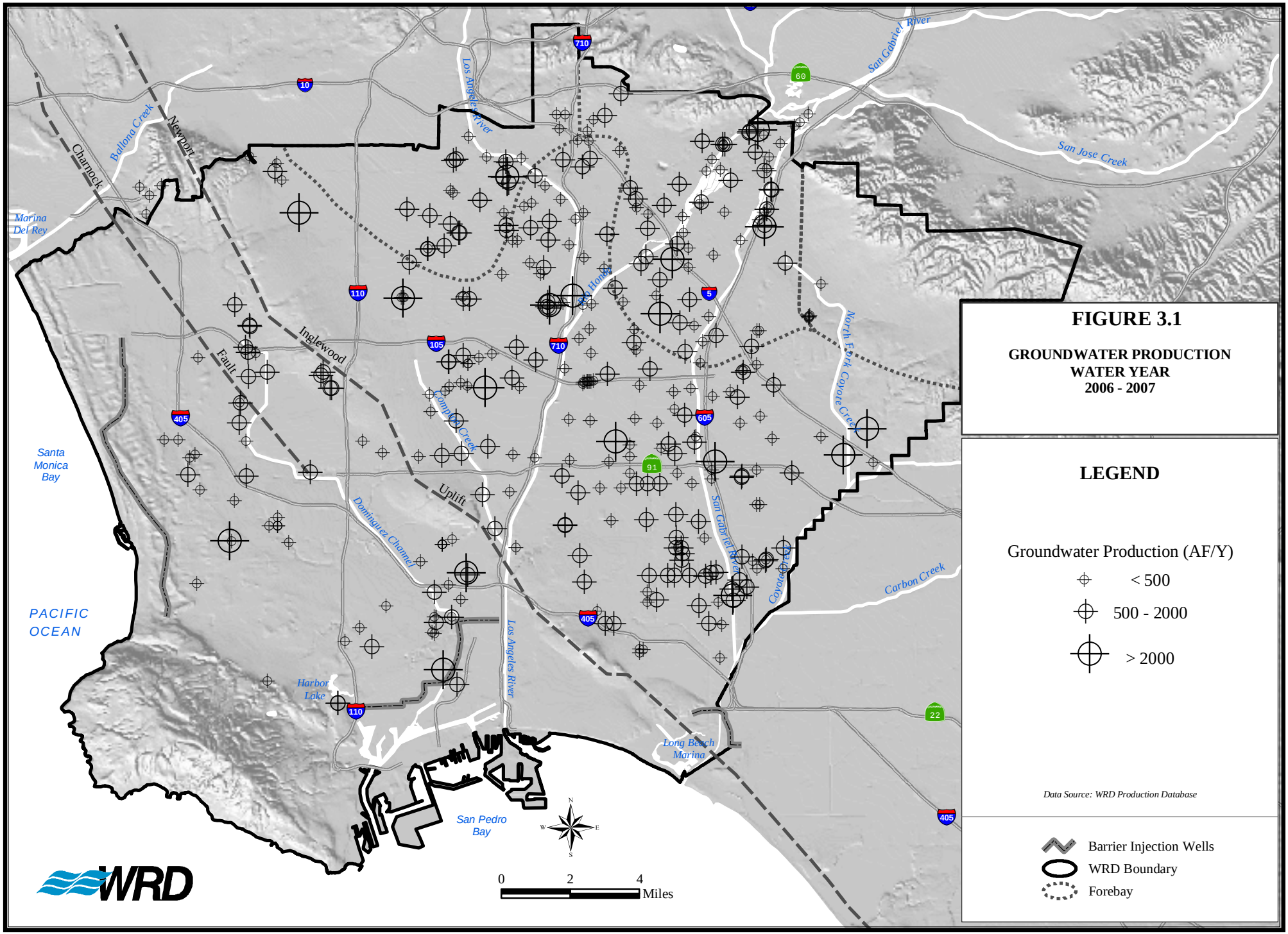


FIGURE 3.1
GROUNDWATER PRODUCTION
WATER YEAR
2006 - 2007
LEGEND
Groundwater Production (AF/Y)
< 500
500 - 2000
> 2000
Data Source: WRD Production Database
Barrier Injection Wells
WRD Boundary
Forebay
Marina Del Rey
Ballona Creek
Newport
Charnock
Inglewood
Fault
Santa Monica Bay
PACIFIC OCEAN
Dominguez Channel
Uplift
Harbor Lake
San Pedro Bay
Los Angeles River
Compton Creek
San Gabriel River
Coyote Creek
North Fork Coyote Creek
San Jose Creek
Carbon Creek
Long Beach Marina
0 2 4
Miles
WRD

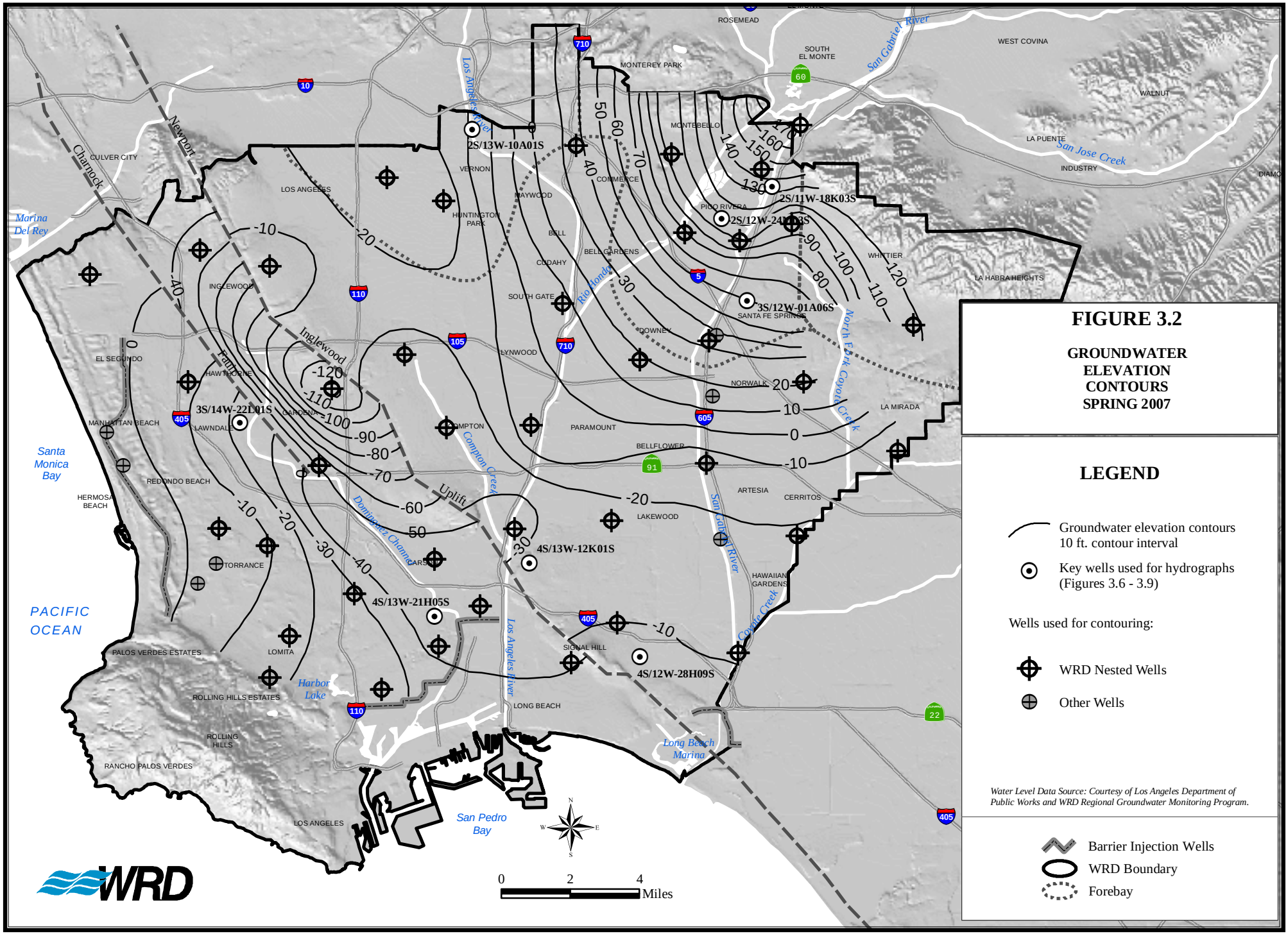


FIGURE 3.2
GROUNDWATER ELEVATION CONTOURS SPRING 2007
LEGEND
Groundwater elevation contours 10 ft. contour interval
Key wells used for hydrographs (Figures 3.6 - 3.9)
Wells used for contouring:
WRD Nested Wells
Other Wells
Water Level Data Source: Courtesy of Los Angeles Department of Public Works and WRD Regional Groundwater Monitoring Program.
Barrier Injection Wells
WRD Boundary
Forebay
2S/13W-10A01S
2S/11W-18K03S
2S/12W-24L03S
3S/12W-01A06S
3S/14W-22L01S
4S/13W-12K01S
4S/13W-21H05S
4S/12W-28H09S
Inglewood
Newport
Charnock
Uplift
Dominguez Channel
Compton Creek
Rio Hondo
North Fork Coyote Creek
San Gabriel River
Los Angeles River
San Jose Creek
Coyote Creek
Harbor Lake
Long Beach Marina
San Pedro Bay
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
ROSEMEAD
SOUTH EL MONTE
WEST COVINA
MONTEREY PARK
WALNUT
LA PUENTE
INDUSTRY
MONTEBELLO
PICO RIVERA
WHITTIER
LA HABRA HEIGHTS
VERNON
COMMERCE
MAYWOOD
HUNTINGTON PARK
BELL
BELL GARDENS
CUDAHY
SOUTH GATE
DOWNEY
LYNWOOD
NORWALK
LA MIRADA
PARAMOUNT
BELLFLOWER
ARTESIA
CERRITOS
LAKEWOOD
HAWAIIAN GARDENS
SIGNAL HILL
LONG BEACH
CULVER CITY
LOS ANGELES
INGLEWOOD
EL SEGUNDO
HAWTHORNE
LAWNDALE
GARDENA
MANHATTAN BEACH
REDONDO BEACH
HERMOSA BEACH
TORRANCE
PALOS VERDES ESTATES
LOMITA
ROLLING HILLS ESTATES
ROLLING HILLS
RANCHO PALOS VERDES
SANTA FE SPRINGS
CARSON
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
0
2
4
Miles
N
S
W
E
WRD

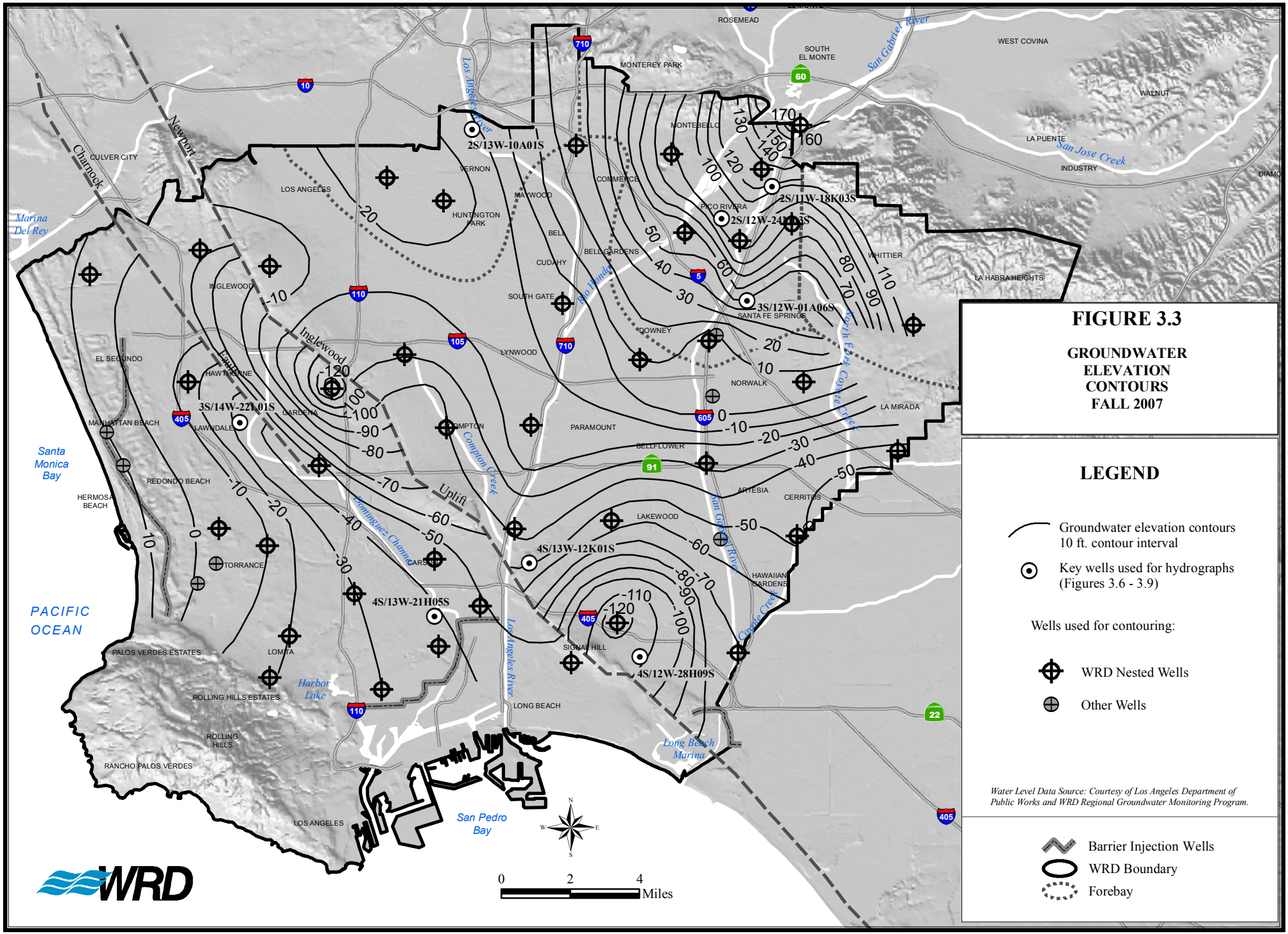


FIGURE 3.3
GROUNDWATER ELEVATION CONTOURS FALL 2007
LEGEND
Groundwater elevation contours 10 ft. contour interval
Key wells used for hydrographs (Figures 3.6 - 3.9)
Wells used for contouring:
WRD Nested Wells
Other Wells
Water Level Data Source: Courtesy of Los Angeles Department of Public Works and WRD Regional Groundwater Monitoring Program.
Barrier Injection Wells
WRD Boundary
Forebay
2S/13W-10A01S
2S/11W-18K03S
2S/12W-24H03S
3S/12W-01A06S
3S/14W-22L01S
4S/13W-12K01S
4S/13W-21H05S
4S/12W-28H09S
Inglewood
Uplift
Dominguez Channel
Compton Creek
North Fork Coyote Creek
San Gabriel River
Coyote Creek
Los Angeles River
Rio Hondo
San Jose Creek
Newport
Charnock
Marina Del Rey
Santa Monica Bay
Harbor Lake
Long Beach Marina
San Pedro Bay
PACIFIC OCEAN
ROSEMEAD
SOUTH EL MONTE
WEST COVINA
MONTEREY PARK
WALNUT
LA PUENTE
INDUSTRY
MONTEBELLO
COMMERCE
VERNON
LOS ANGELES
MAYWOOD
HUNTINGTON PARK
PICO RIVERA
BELL
BELL GARDENS
CUDAHY
WHITTIER
LA HABRA HEIGHTS
SOUTH GATE
SANTA FE SPRINGS
DOWNEY
LYNWOOD
NORWALK
LA MIRADA
EL SEGUNDO
HAWTHORNE
INGLEWOOD
LAWNDALE
GARDENA
MANHATTAN BEACH
COMPTON
PARAMOUNT
BELLFLOWER
REDONDO BEACH
HERMOSA BEACH
ARTESIA
CERRITOS
LAKEWOOD
TORRANCE
CARSON
HAWAIIAN GARDENS
SIGNAL HILL
LONG BEACH
PALOS VERDES ESTATES
LOMITA
ROLLING HILLS ESTATES
ROLLING HILLS
RANCHO PALOS VERDES
LOS ANGELES
0 2 4 Miles
WRD

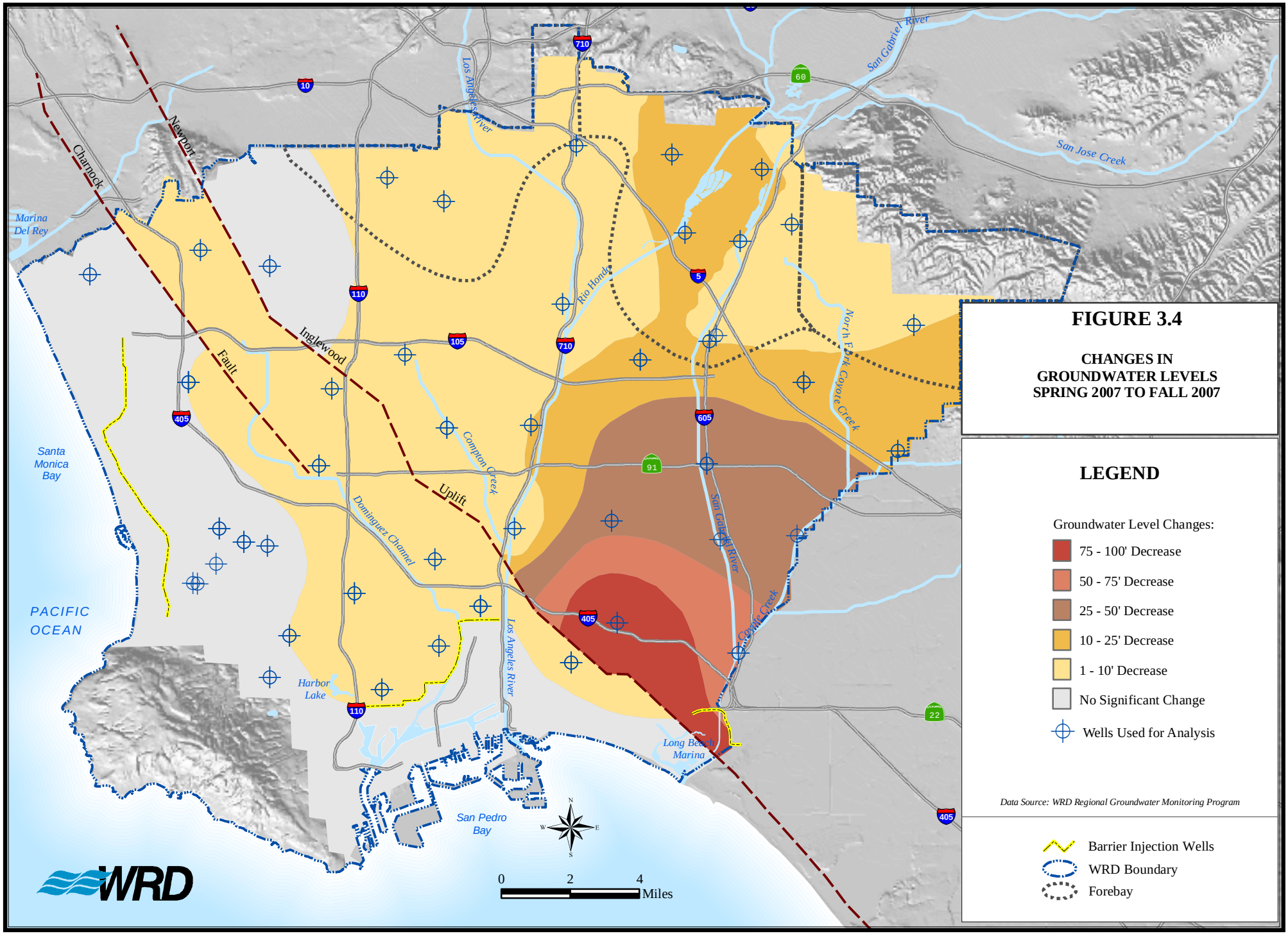


FIGURE 3.4
CHANGES IN GROUNDWATER LEVELS SPRING 2007 TO FALL 2007
LEGEND
Groundwater Level Changes:
75 - 100' Decrease
50 - 75' Decrease
25 - 50' Decrease
10 - 25' Decrease
1 - 10' Decrease
No Significant Change
Wells Used for Analysis
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Charnock
Newport
Inglewood
Fault
Uplift
Rio Hondo
Compton Creek
Dominguez Channel
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

Monthly Groundwater Production
Water Year 2006-2007

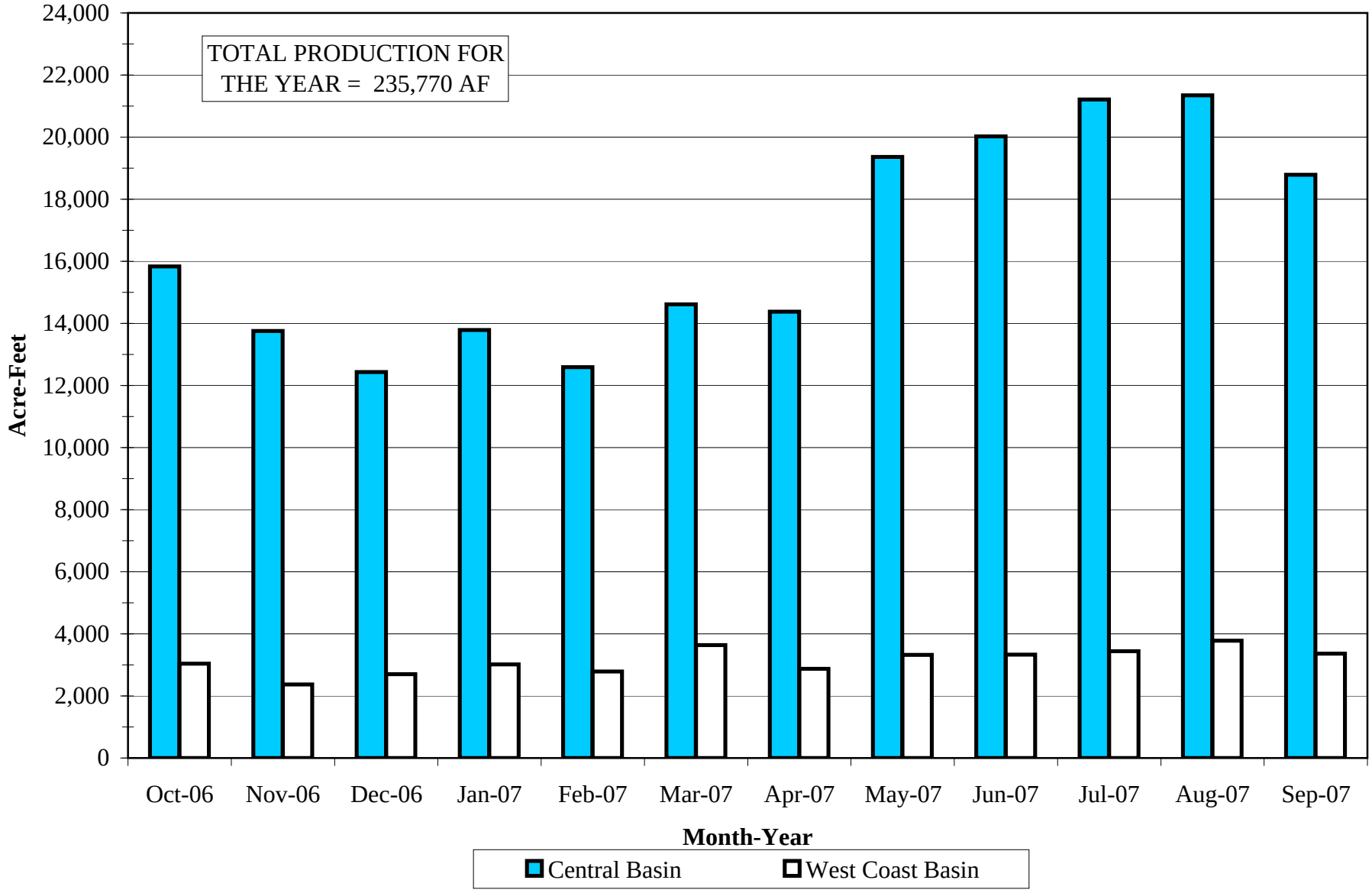
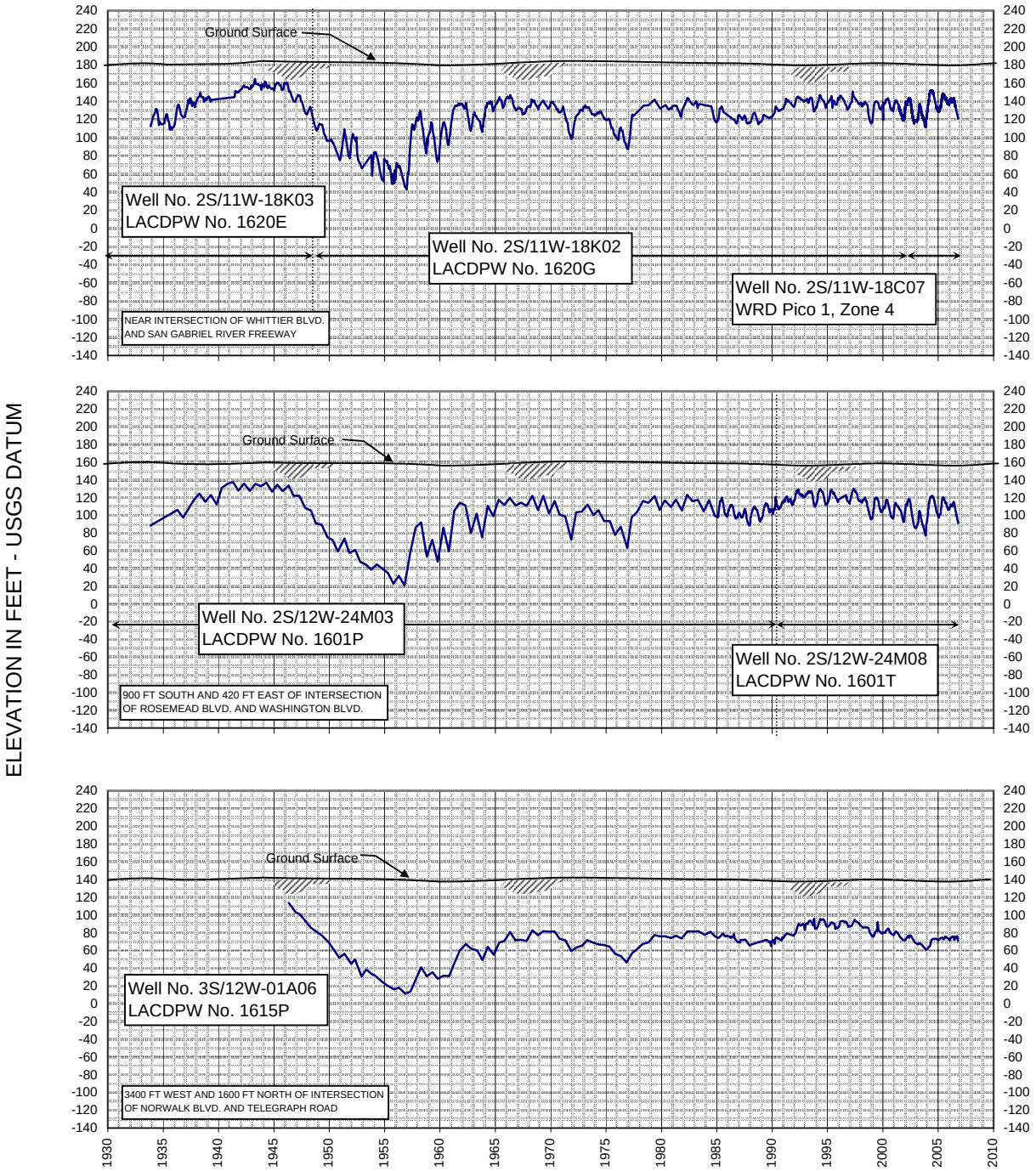


Figure 3.5

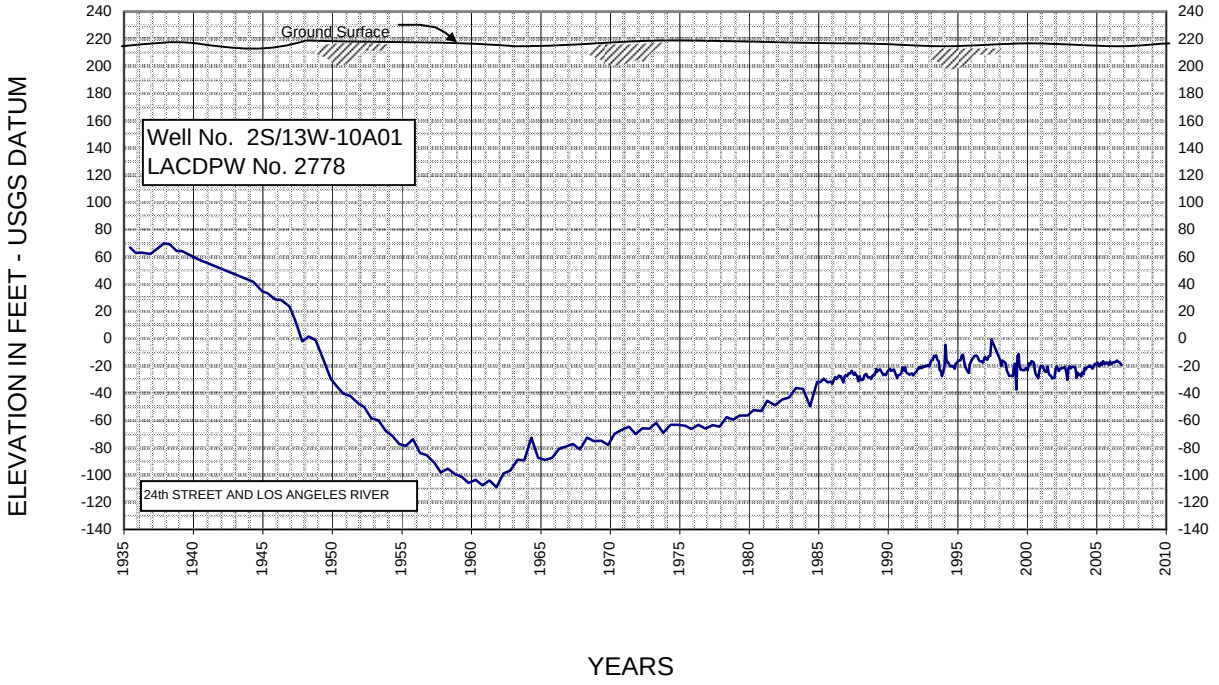


See Figure 3.2 for well locations

FLUCTUATIONS OF WATER LEVEL AT WELLS

MONTEBELLO FOREBAY

Figure 3.6

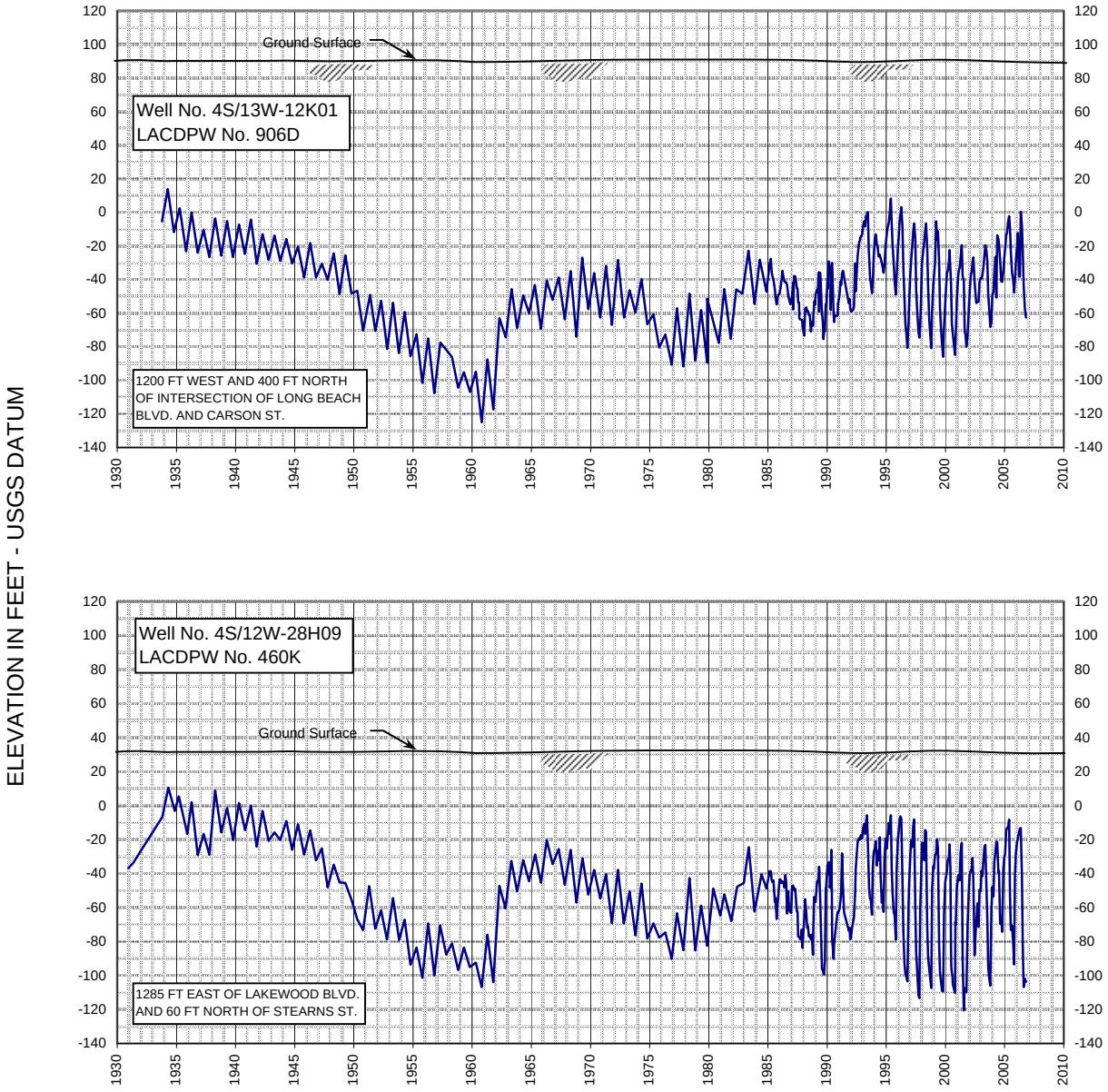


See Figure 3.2 for well location

FLUCTUATIONS OF WATER LEVEL AT WELLS

LOS ANGELES FOREBAY

Figure 3.7

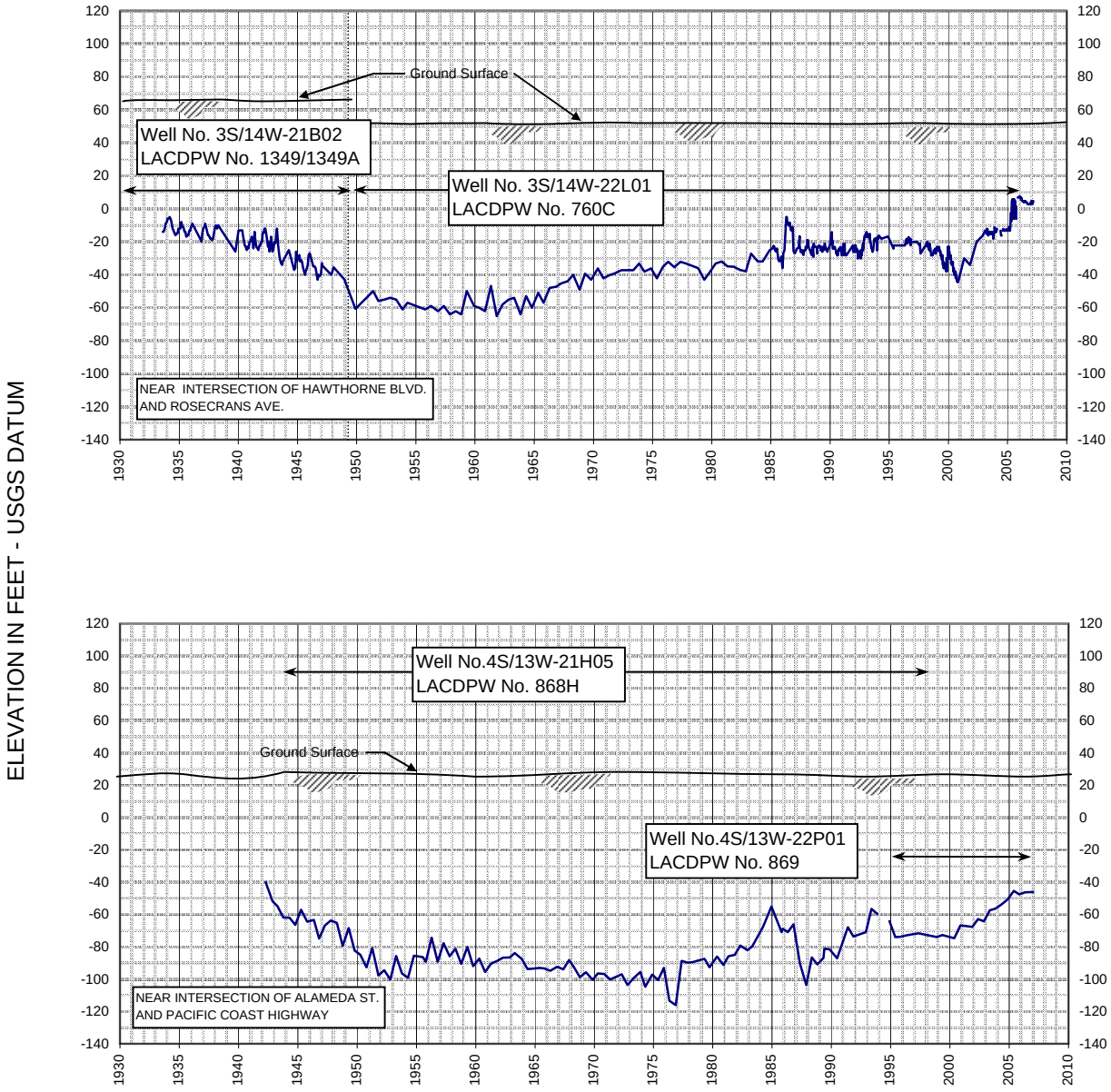


See Figure 3.2 for well locations

FLUCTUATIONS OF WATER LEVEL AT WELLS

CENTRAL BASIN PRESSURE AREA

Figure 3.8



See Figure 3.2 for well locations

FLUCTUATIONS OF WATER LEVEL AT WELLS

WEST BASIN

Figure 3.9

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL RIO HONDO #1

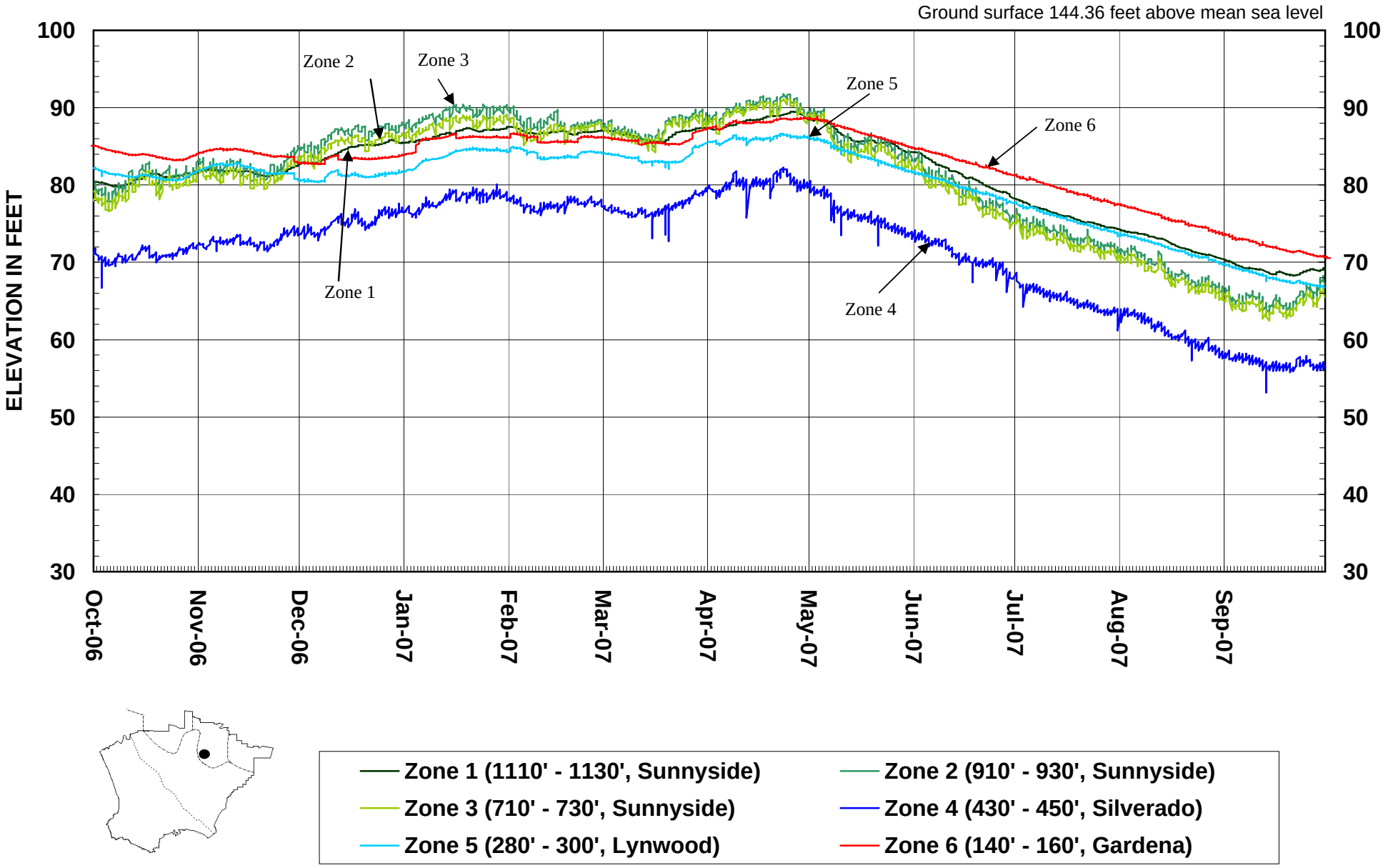


Figure 3.10

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL HUNTINGTON PARK #1

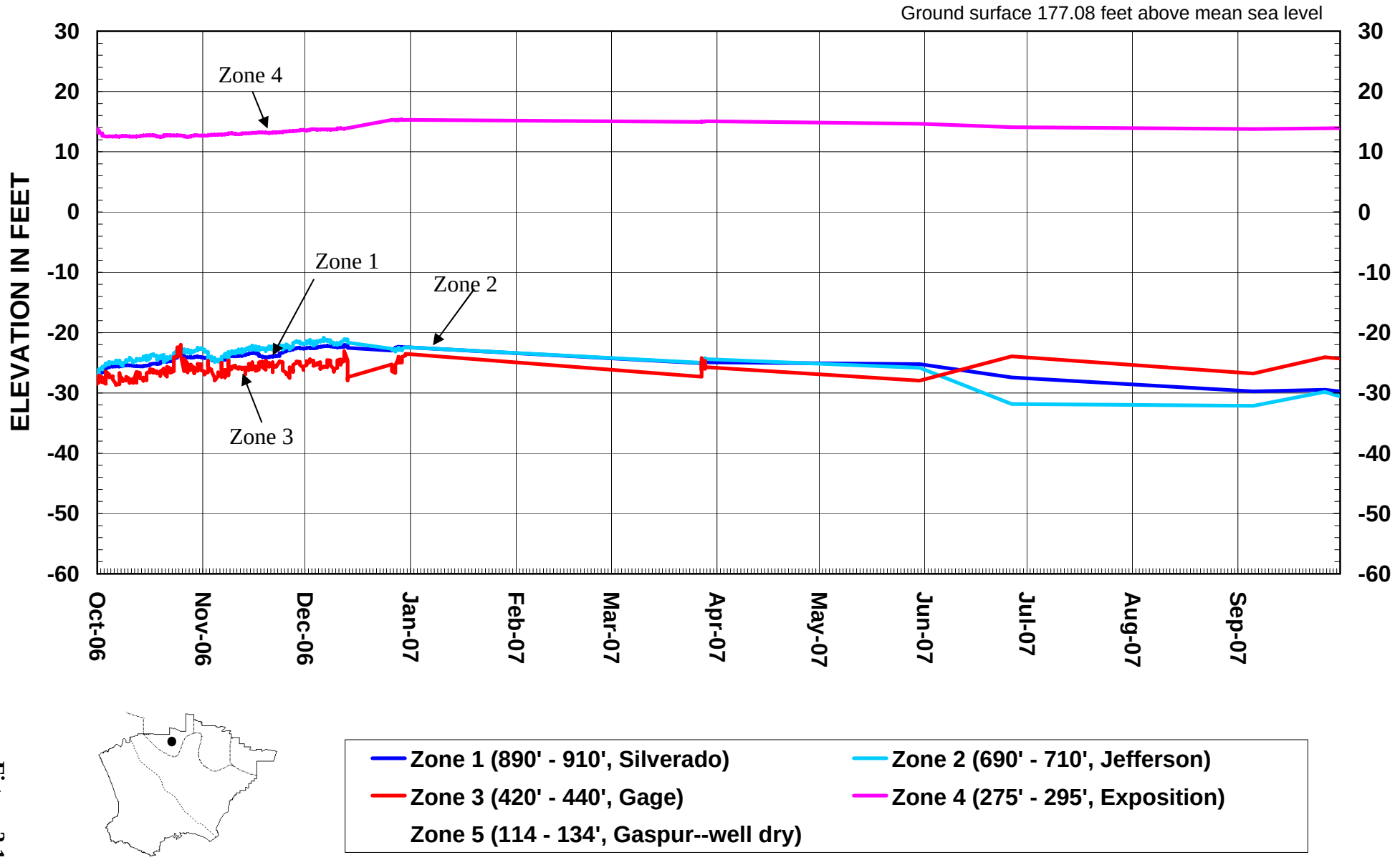


Figure 3.11

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL LONG BEACH #1

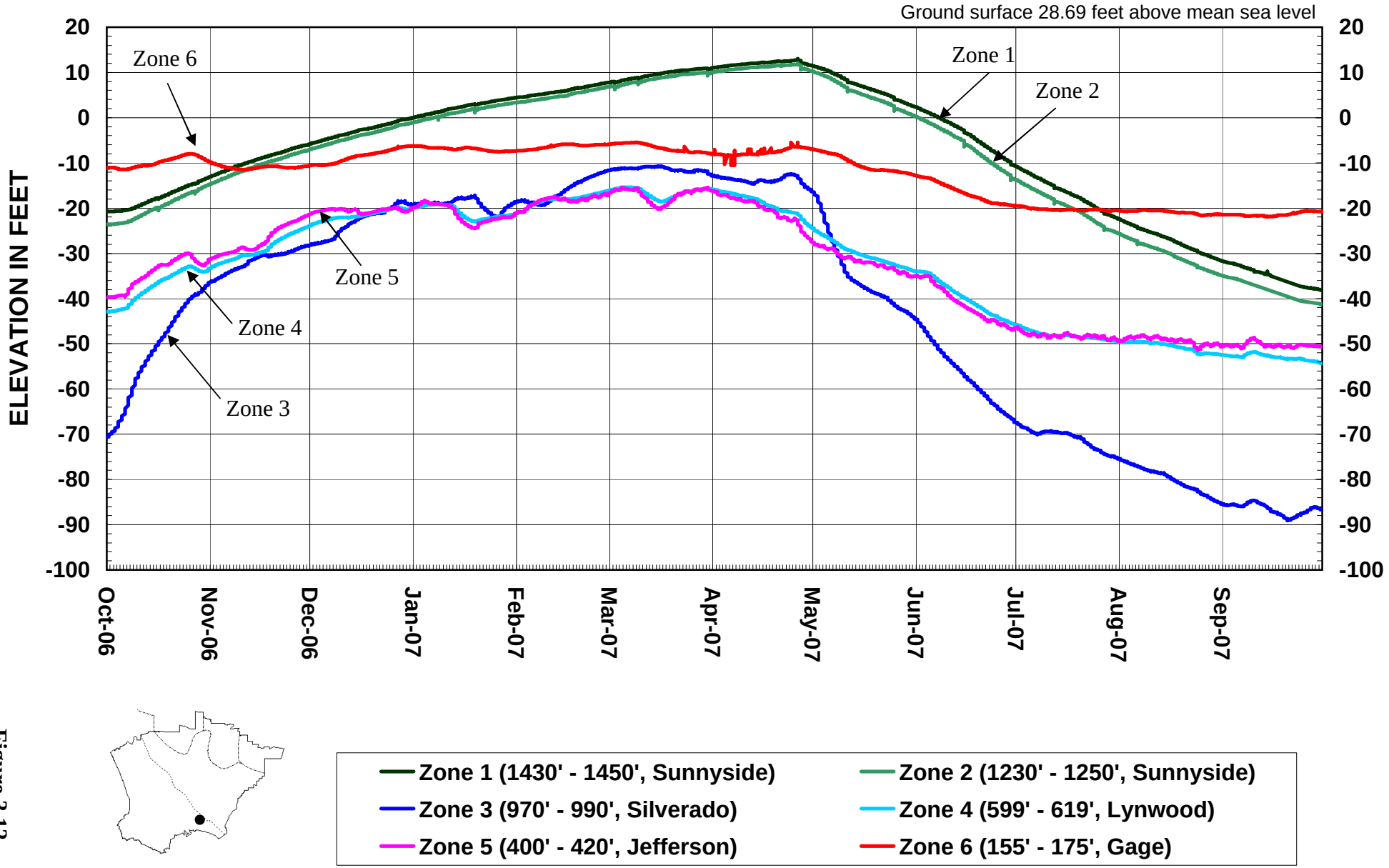


Figure 3.12

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL CARSON #1

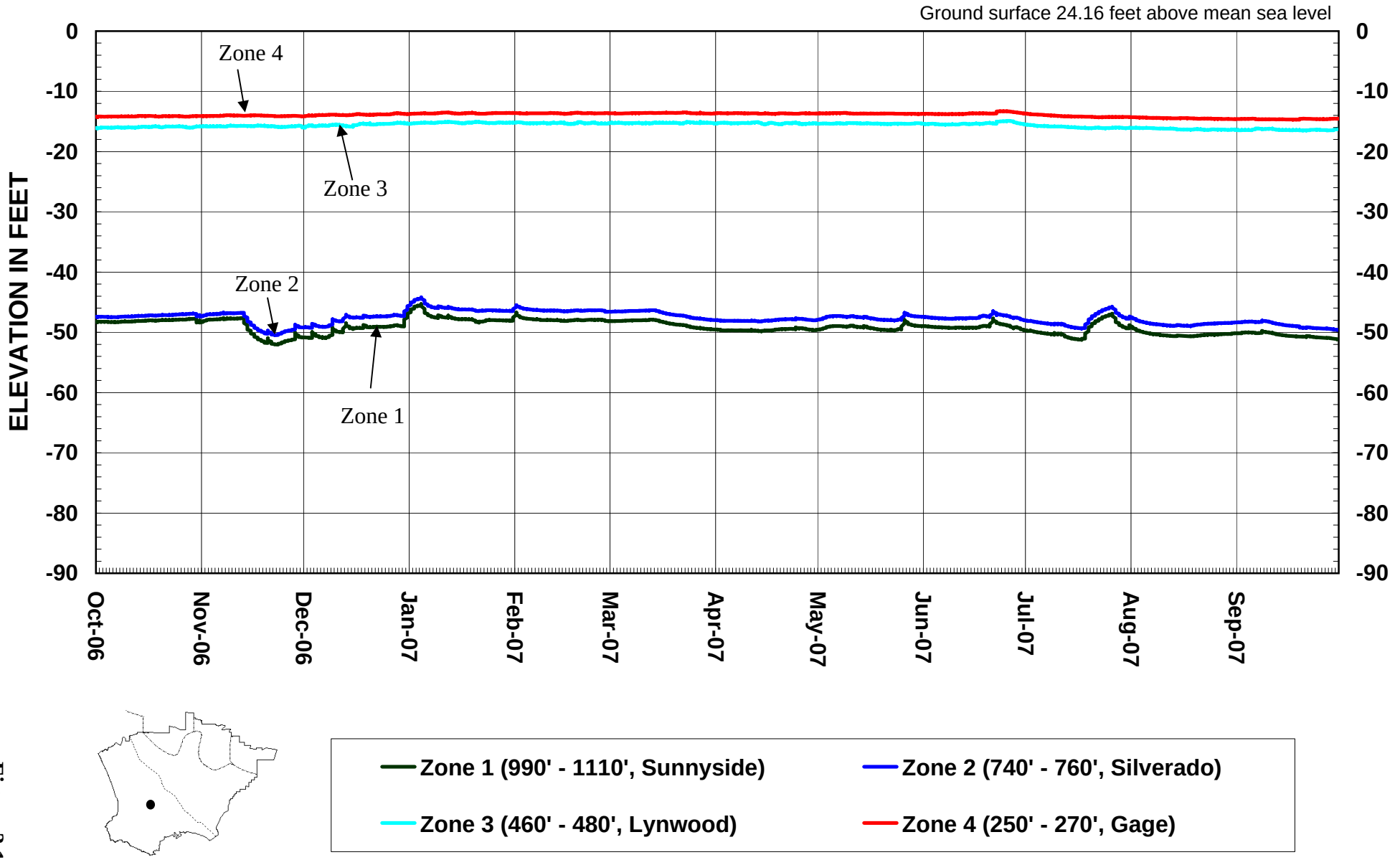


Figure 3.13

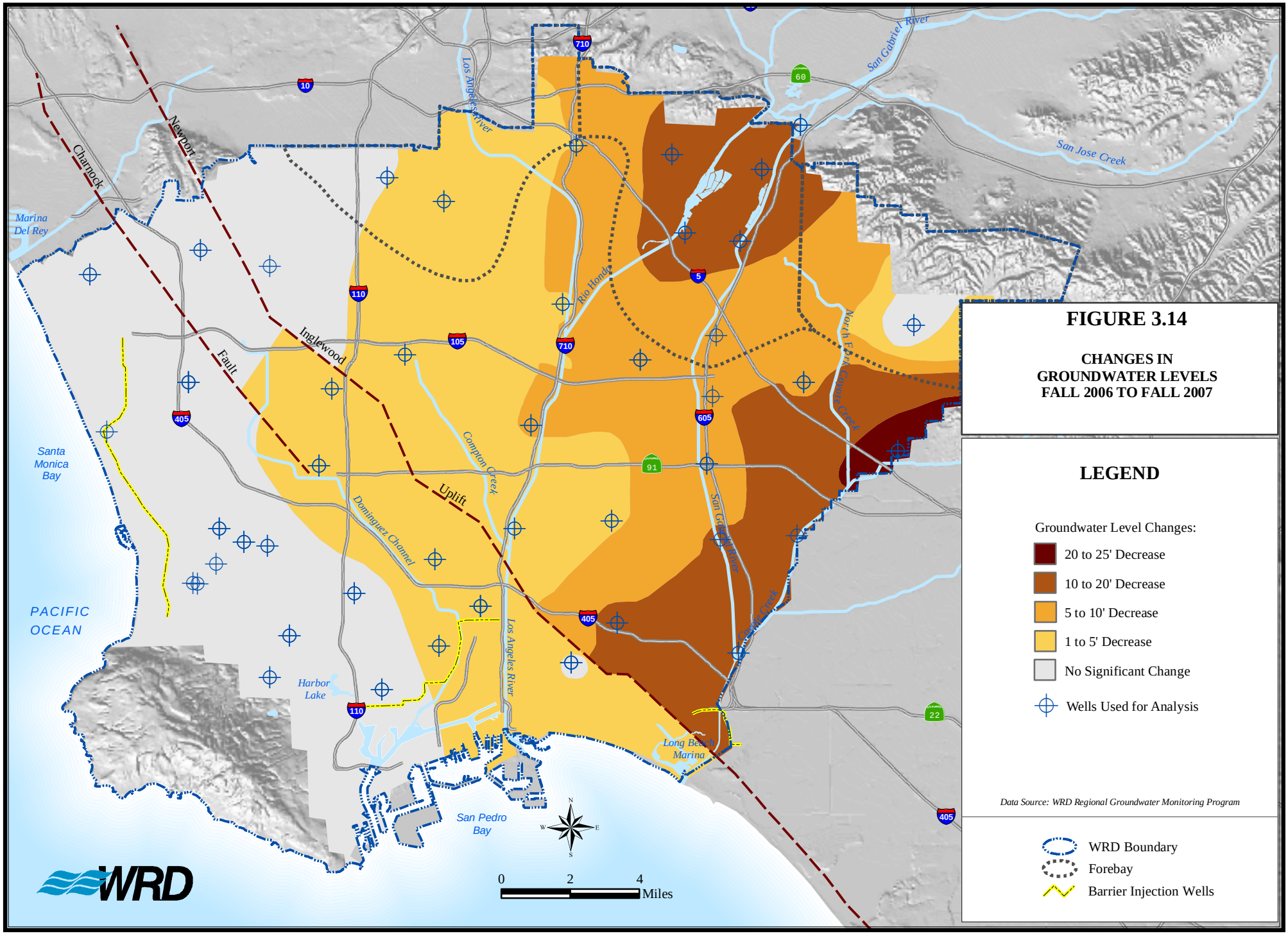


FIGURE 3.14
CHANGES IN
GROUNDWATER LEVELS
FALL 2006 TO FALL 2007
LEGEND
Groundwater Level Changes:
20 to 25' Decrease
10 to 20' Decrease
5 to 10' Decrease
1 to 5' Decrease
No Significant Change
Wells Used for Analysis
Data Source: WRD Regional Groundwater Monitoring Program
WRD Boundary
Forebay
Barrier Injection Wells
Newport
Charnock
Fault
Inglewood
Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
San Jose Creek
North Fork Coyote Creek
Coyote Creek
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

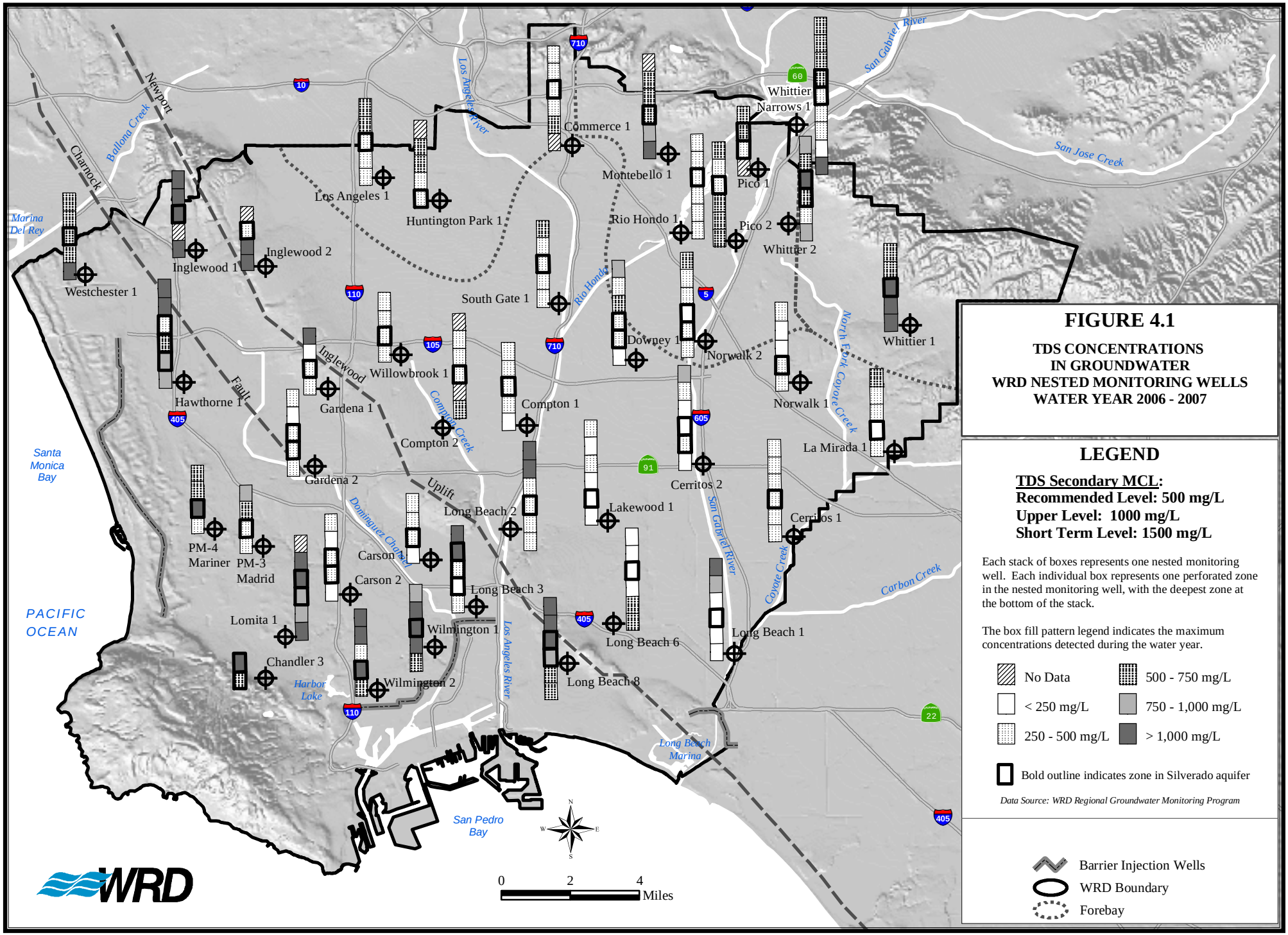


FIGURE 4.1

TDS CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2006 - 2007

LEGEND

TDS Secondary MCL:
Recommended Level: 500 mg/L
Upper Level: 1000 mg/L
Short Term Level: 1500 mg/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- < 250 mg/L
- 250 - 500 mg/L
- 500 - 750 mg/L
- 750 - 1,000 mg/L
- > 1,000 mg/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay

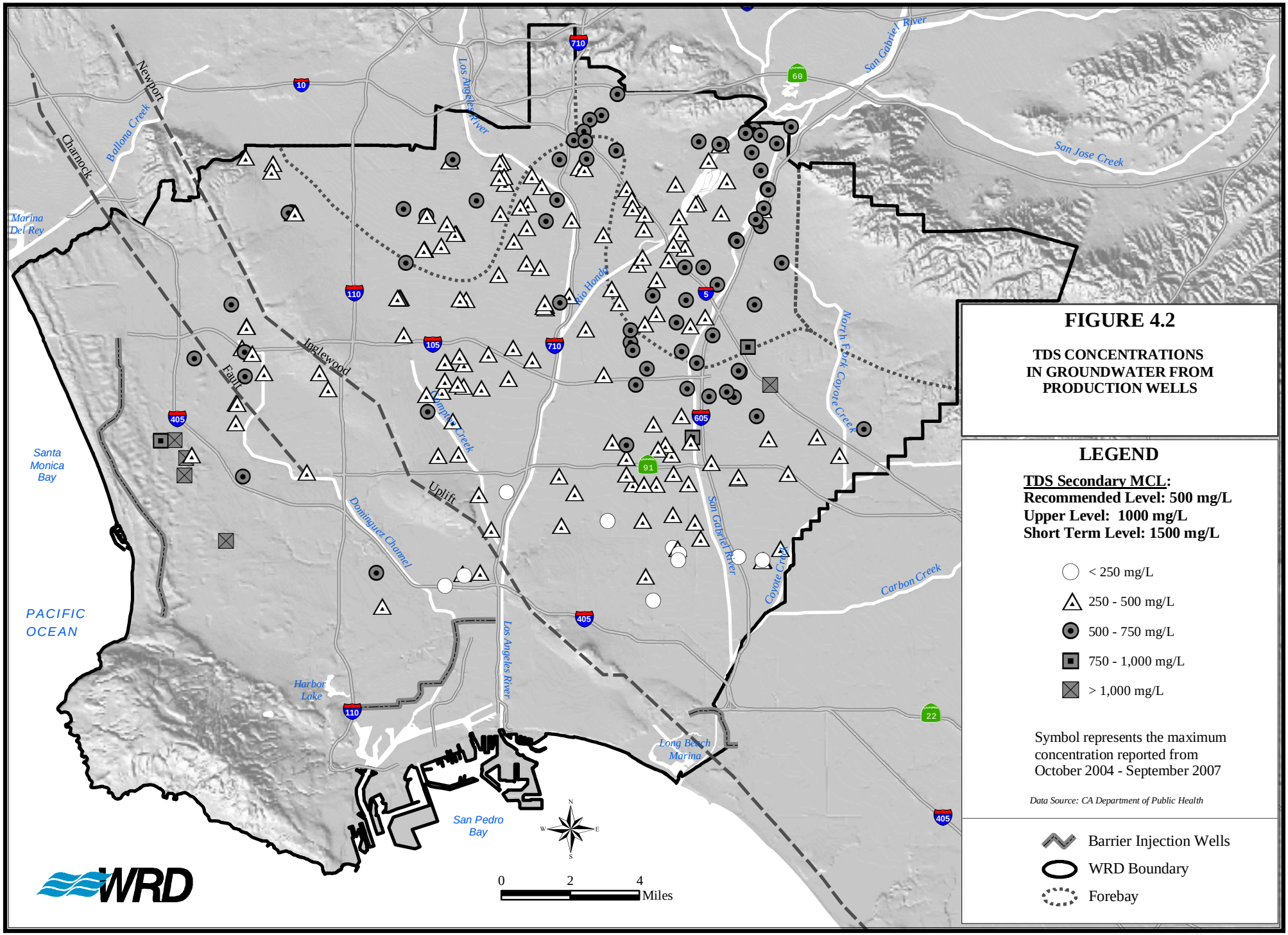
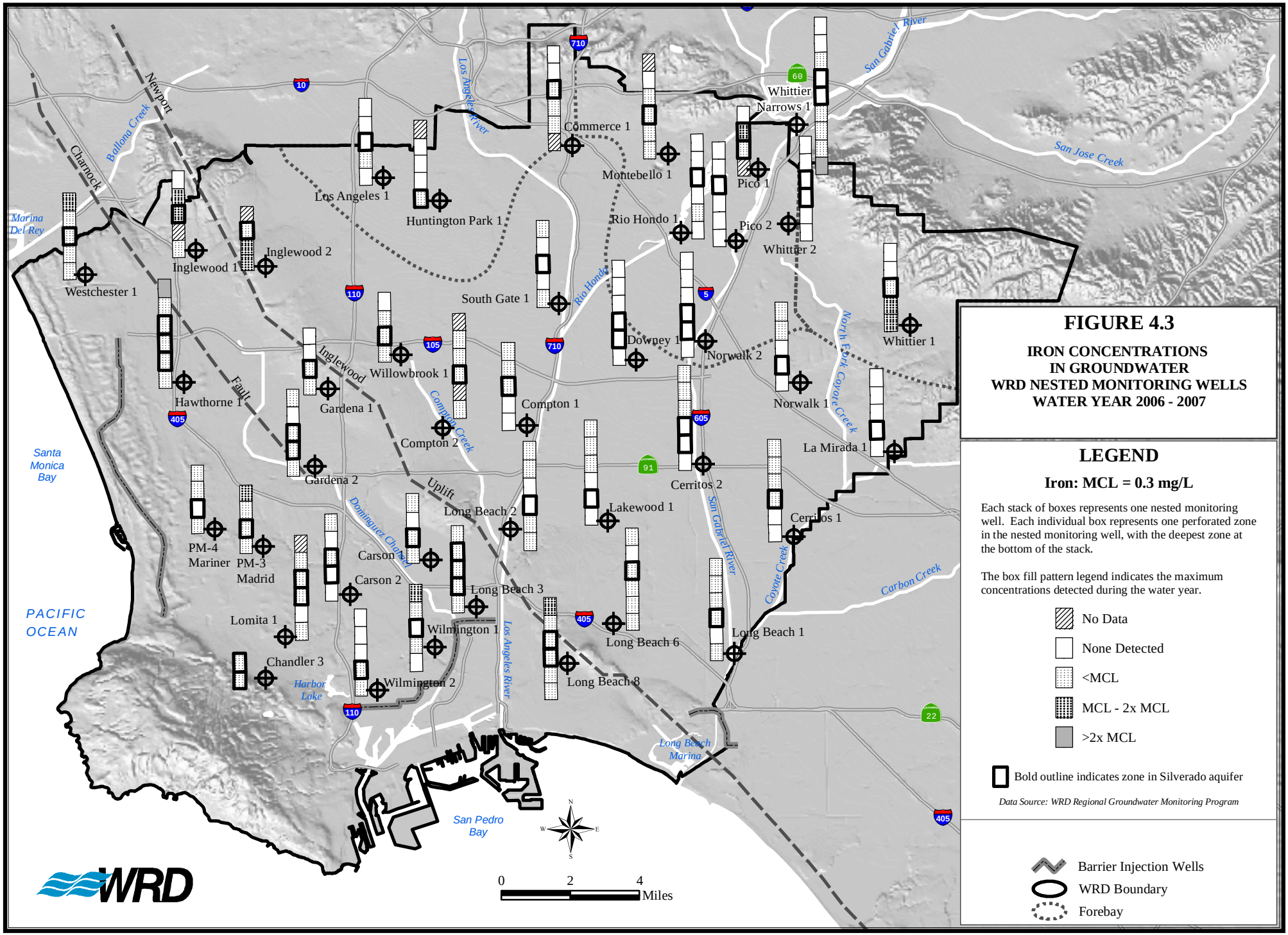


FIGURE 4.2
TDS CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TDS Secondary MCL:
Recommended Level: 500 mg/L
Upper Level: 1000 mg/L
Short Term Level: 1500 mg/L
< 250 mg/L
250 - 500 mg/L
500 - 750 mg/L
750 - 1,000 mg/L
> 1,000 mg/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Ballona Creek
Charnock
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Dominguez Channel
Uplift
Coyote Creek
Carbon Creek
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD


Newport
Ballona Creek
Charnock
Marina Del Rey
Westchester 1
Inglewood 1
Inglewood 2
Los Angeles 1
Huntington Park 1
Los Angeles River
Commerce 1
Montebello 1
Rio Hondo 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 2
San Gabriel River
San Jose Creek
Whittier 1
South Gate 1
Rio Hondo
Downey 1
Norwalk 2
Norwalk 1
North Fork Coyote Creek
Inglewood
Willowbrook 1
Hawthorne 1
Fault
Gardena 1
Gardena 2
Compton Creek
Compton 1
Compton 2
La Mirada 1
Cerritos 2
Cerritos 1
Santa Monica Bay
Uplift
Dominguez Channel
Long Beach 2
Lakewood 1
San Gabriel River
Coyote Creek
Carbon Creek
PM-4 Mariner
PM-3 Madrid
Carson 1
Carson 2
Long Beach 3
Long Beach 6
Long Beach 1
PACIFIC OCEAN
Lomita 1
Wilmington 1
Chandler 3
Harbor Lake
Wilmington 2
Los Angeles River
Long Beach 8
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD
FIGURE 4.3
IRON CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
Iron: MCL = 0.3 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
<MCL
MCL - 2x MCL
>2x MCL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay

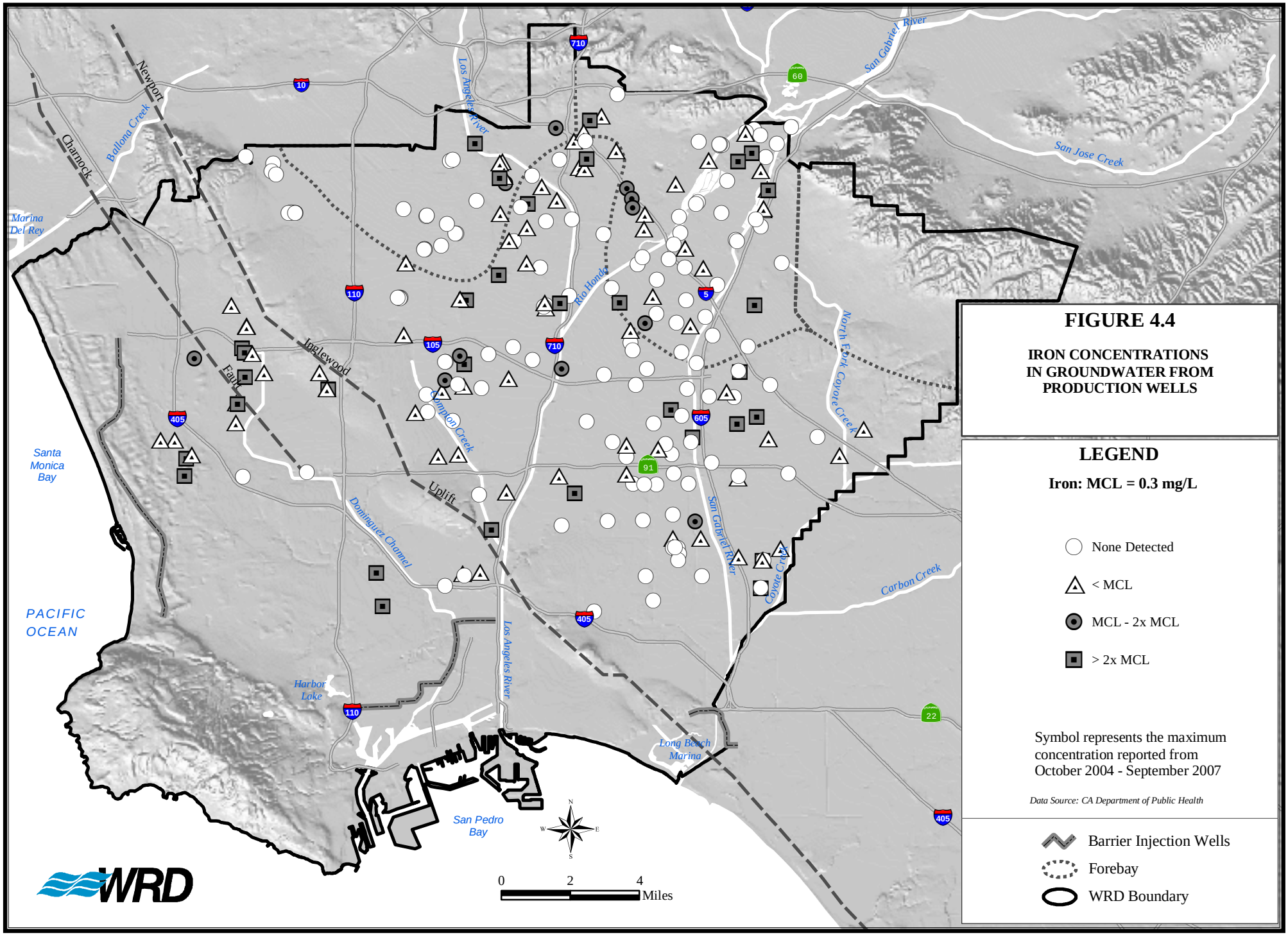


FIGURE 4.4
IRON CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Iron: MCL = 0.3 mg/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
Forebay
WRD Boundary
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Cimmon Creek
Santa Monica Bay
Uplift
Dominguez Channel
Coyote Creek
Carbon Creek
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

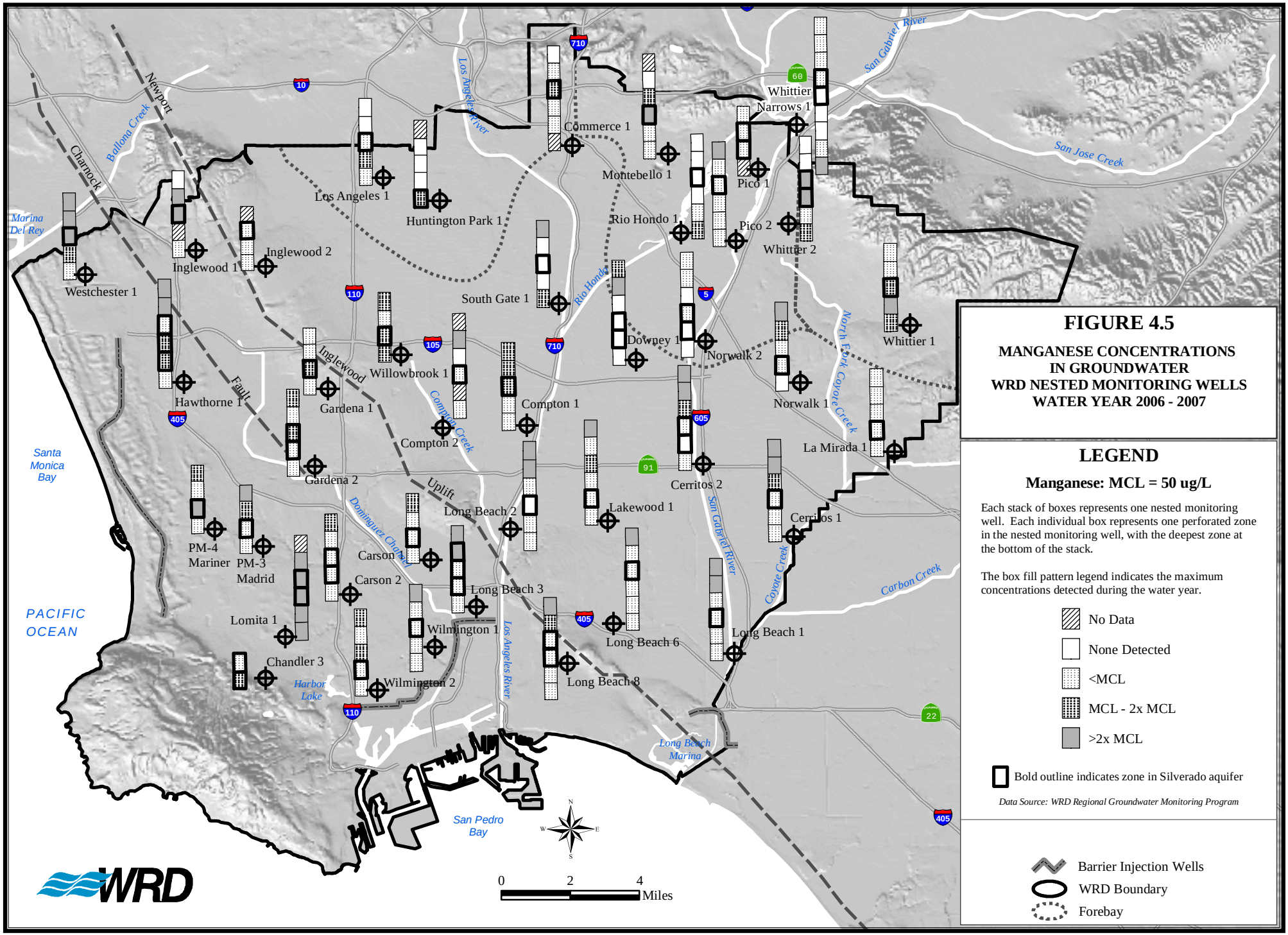


FIGURE 4.5

MANGANESE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007

LEGEND

Manganese: MCL = 50 ug/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

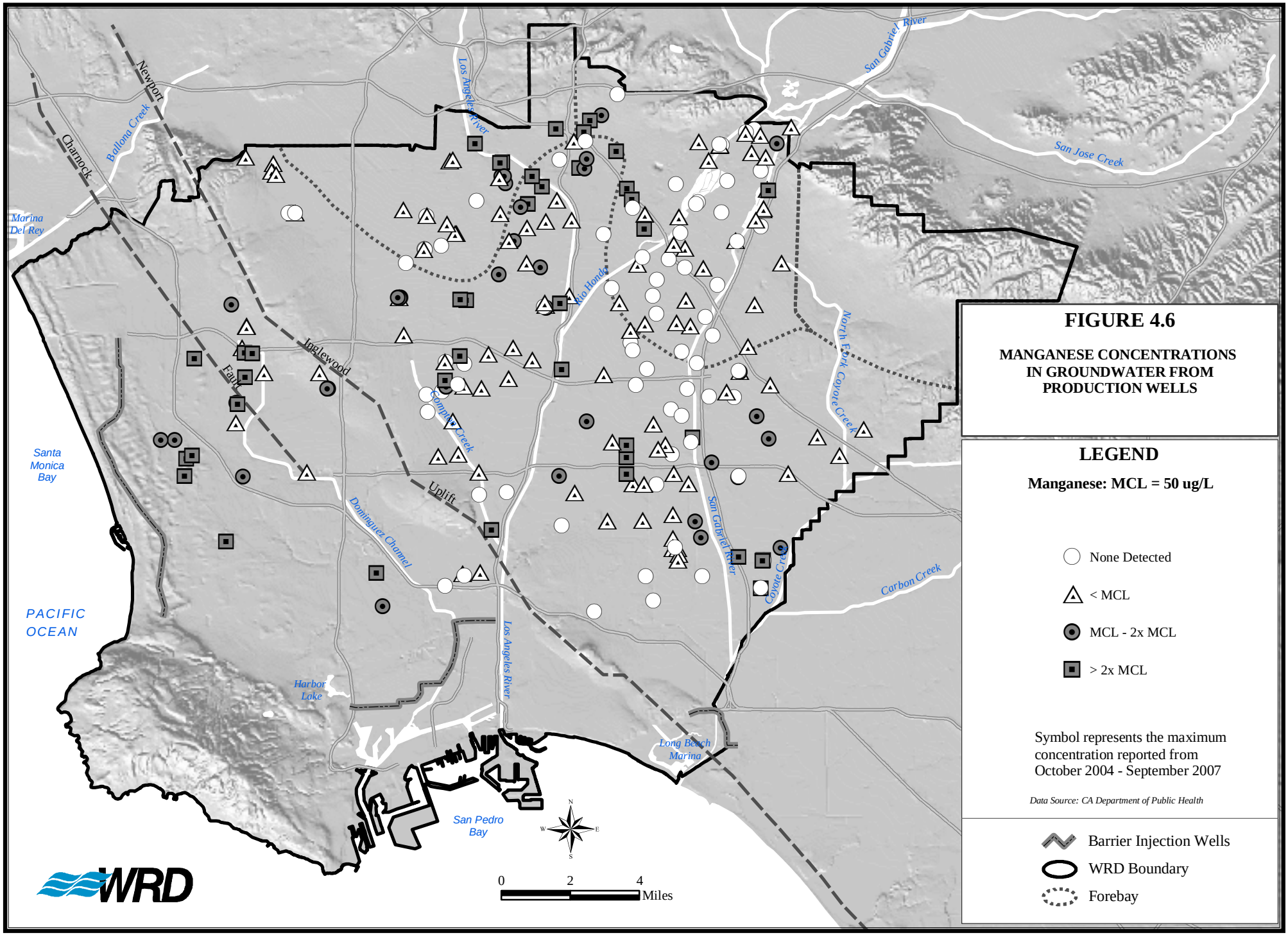
The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- None Detected
- <MCL
- MCL - 2x MCL
- >2x MCL

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay


Newport
Ballona Creek
Charnock
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Compton Creek
Santa Monica Bay
Uplift
Dominguez Channel
Coyote Creek
Carbon Creek
PACIFIC OCEAN
Harbor Lake
Los Angeles River
Long Beach Marina
San Pedro Bay
N
W
E
S
0
2
4
Miles
WRD
FIGURE 4.6
MANGANESE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Manganese: MCL = 50 ug/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay

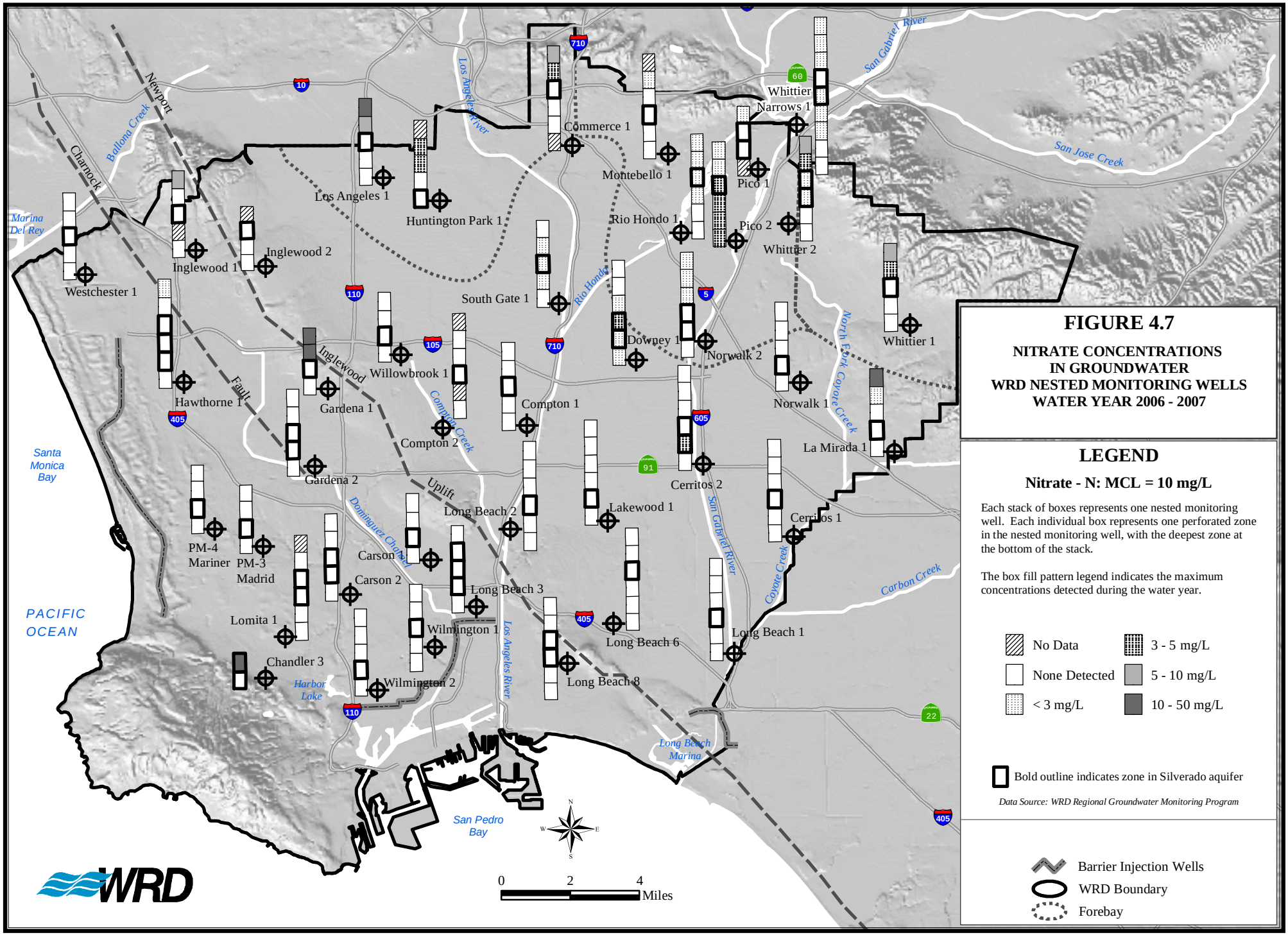


FIGURE 4.7
NITRATE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
Nitrate - N: MCL = 10 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< 3 mg/L
3 - 5 mg/L
5 - 10 mg/L
10 - 50 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Los Angeles 1
Huntington Park 1
Gardena 1
Gardena 2
Willowbrook 1
South Gate 1
Compton 1
Compton 2
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 1
Norwalk 2
Pico 1
Pico 2
Whittier 1
Whittier 2
Whittier Narrows 1
La Mirada 1
Cerritos 1
Cerritos 2
Lakewood 1
Long Beach 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
San Pedro Bay
Long Beach Marina
Ballona Creek
Charnock Fault
Inglewood Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Newport
0 2 4 Miles
WRD

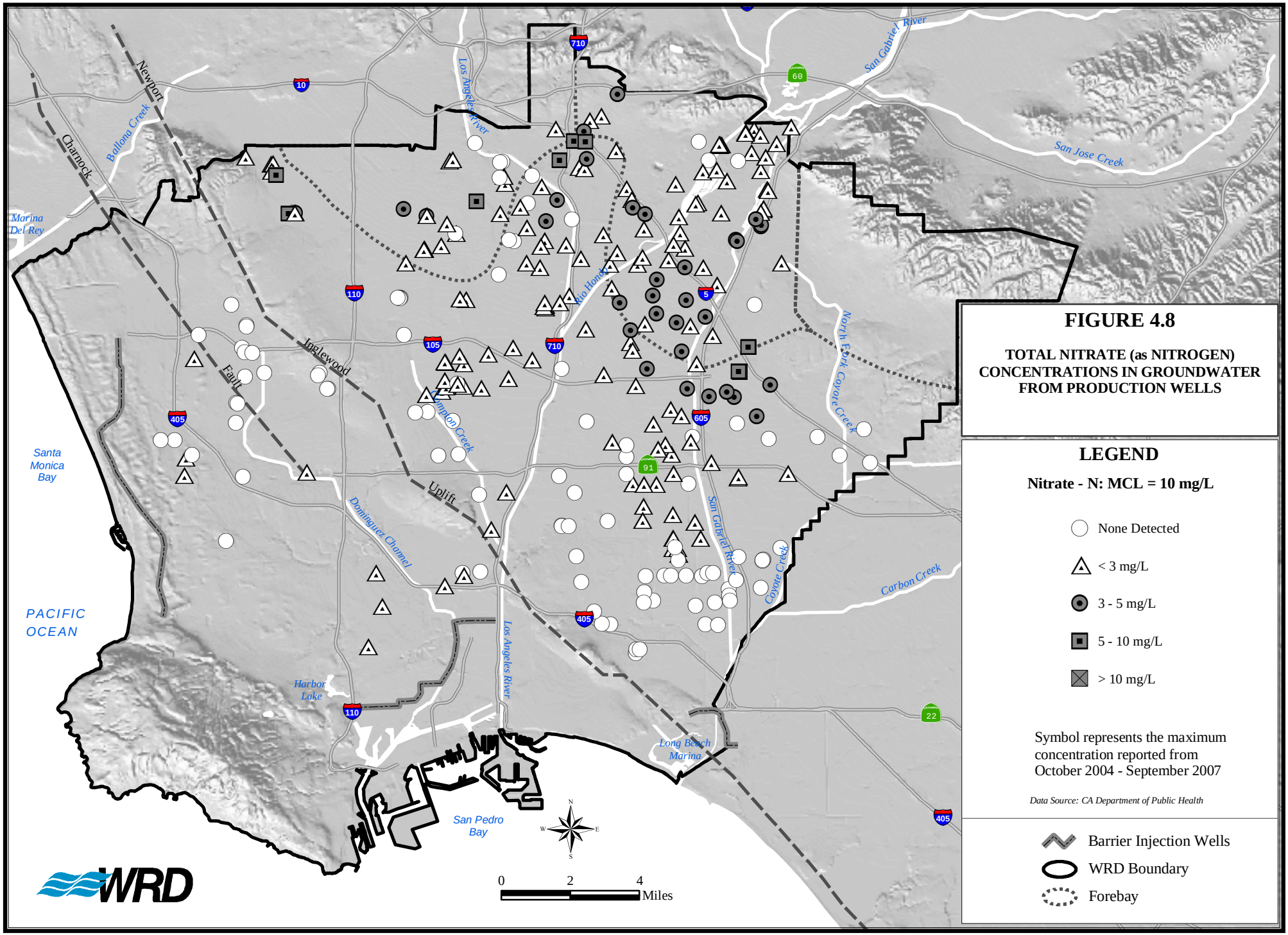


FIGURE 4.8
TOTAL NITRATE (as NITROGEN) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Nitrate - N: MCL = 10 mg/L
None Detected
< 3 mg/L
3 - 5 mg/L
5 - 10 mg/L
> 10 mg/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Compton Creek
Uplift
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Coyote Creek
Carbon Creek
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

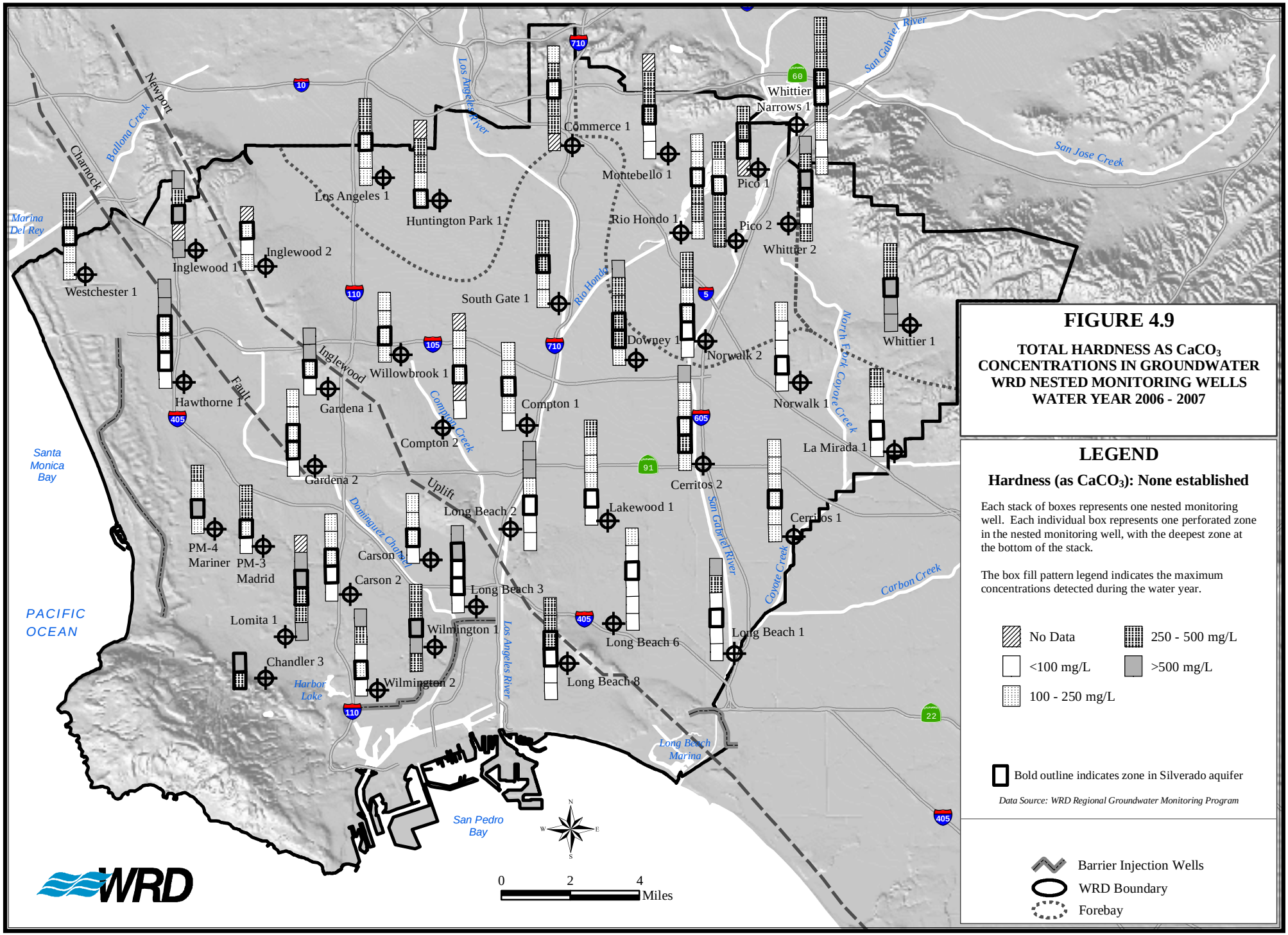


FIGURE 4.9

TOTAL HARDNESS AS $CaCO_3$ CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2006 - 2007

LEGEND

Hardness (as $CaCO_3$): None established

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- <100 mg/L
- 100 - 250 mg/L
- 250 - 500 mg/L
- >500 mg/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay

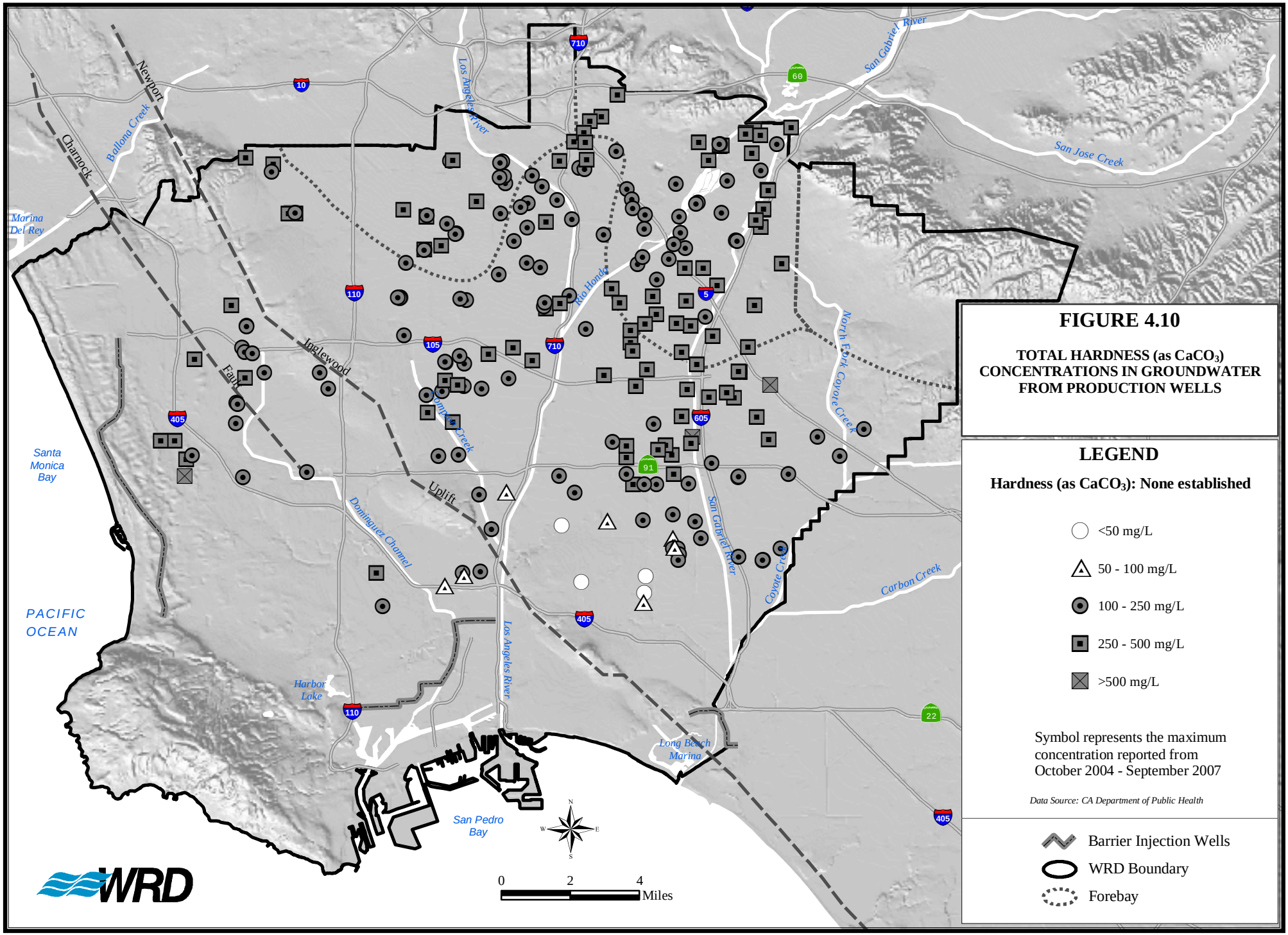


FIGURE 4.10
TOTAL HARDNESS (as $CaCO_3$) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Hardness (as $CaCO_3$): None established
<50 mg/L
50 - 100 mg/L
100 - 250 mg/L
250 - 500 mg/L
>500 mg/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Ballona Creek
Charnock
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Dominguez Creek
Uplift
Santa Monica Bay
PACIFIC OCEAN
Dominguez Channel
Coyote Creek
Carbon Creek
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

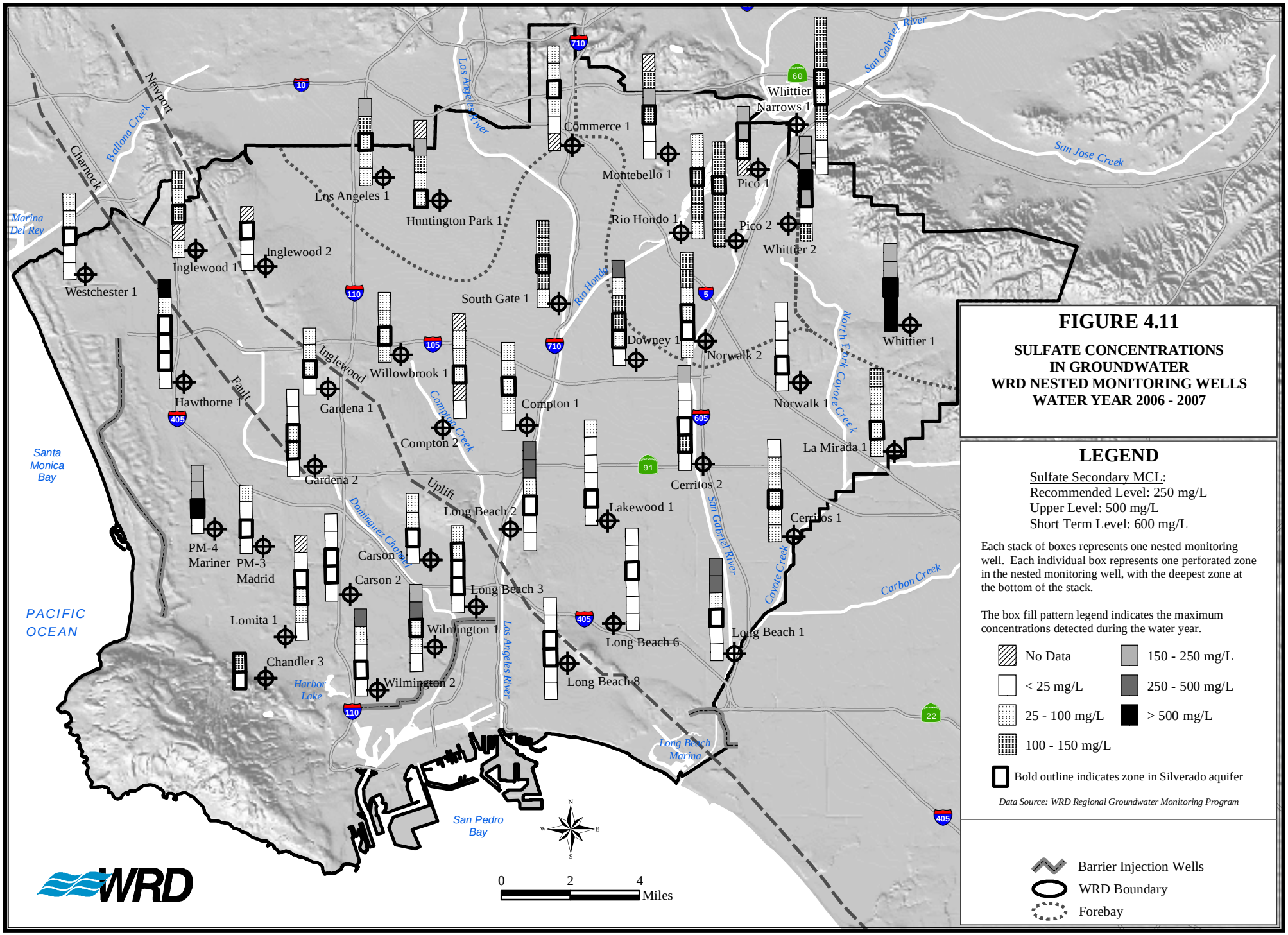


FIGURE 4.11

SULFATE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007

LEGEND

Sulfate Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- < 25 mg/L
- 25 - 100 mg/L
- 100 - 150 mg/L
- 150 - 250 mg/L
- 250 - 500 mg/L
- > 500 mg/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay

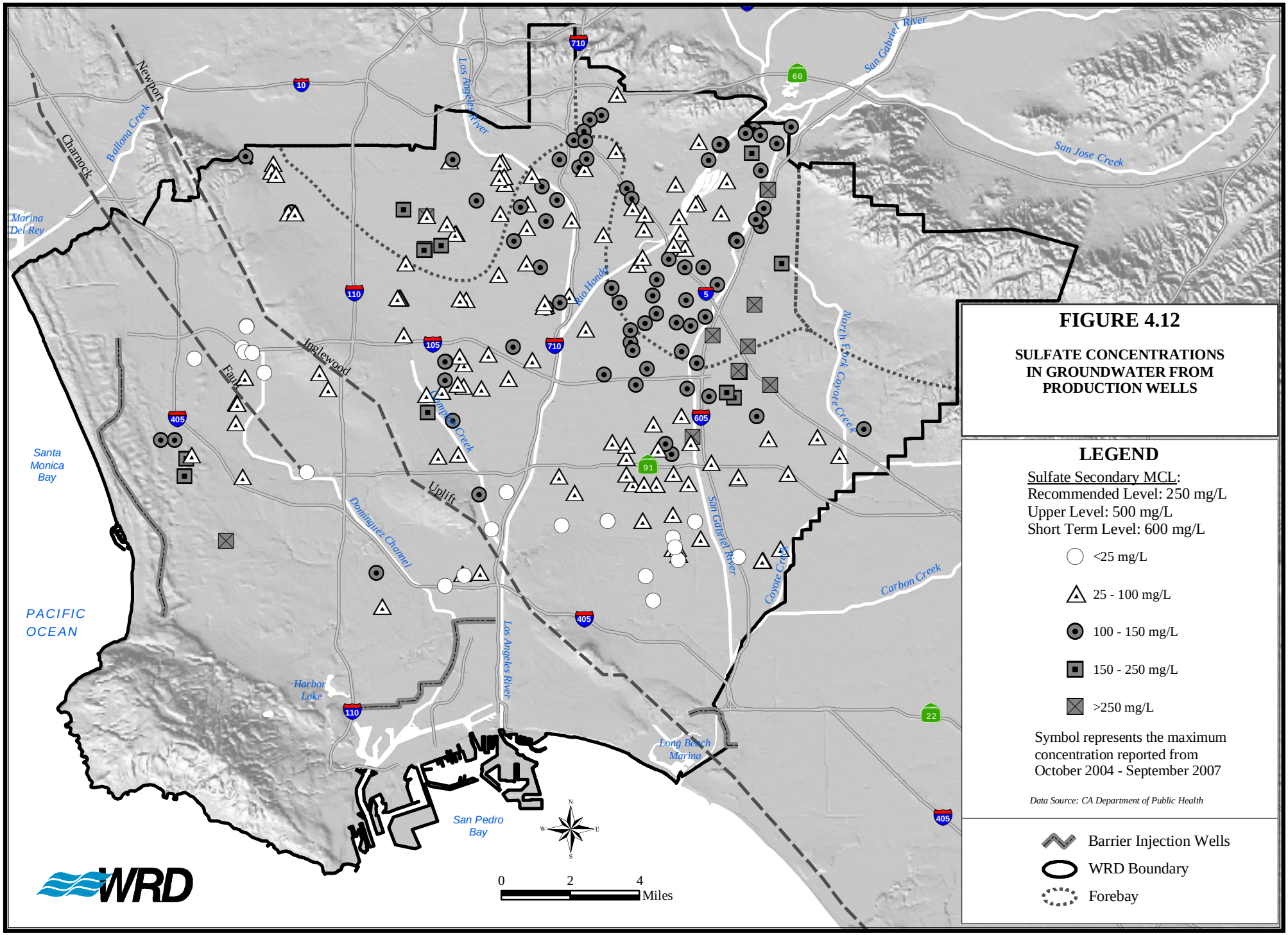


FIGURE 4.12
SULFATE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Sulfate Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L
<25 mg/L
25 - 100 mg/L
100 - 150 mg/L
150 - 250 mg/L
>250 mg/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Compton Creek
Uplift
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Coyote Creek
Carbon Creek
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

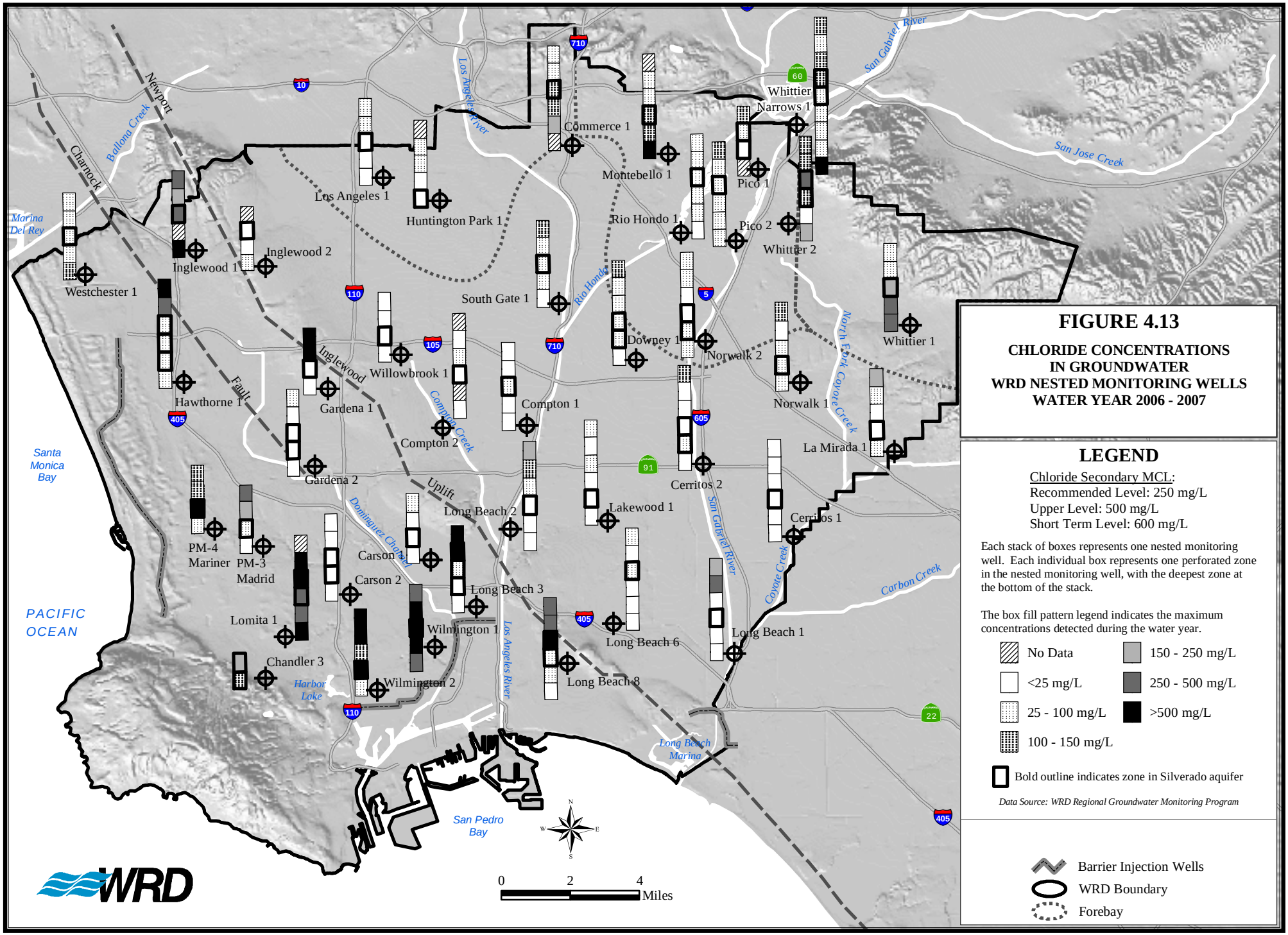


FIGURE 4.13

CHLORIDE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007

LEGEND

Chloride Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- <25 mg/L
- 25 - 100 mg/L
- 100 - 150 mg/L
- 150 - 250 mg/L
- 250 - 500 mg/L
- >500 mg/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay

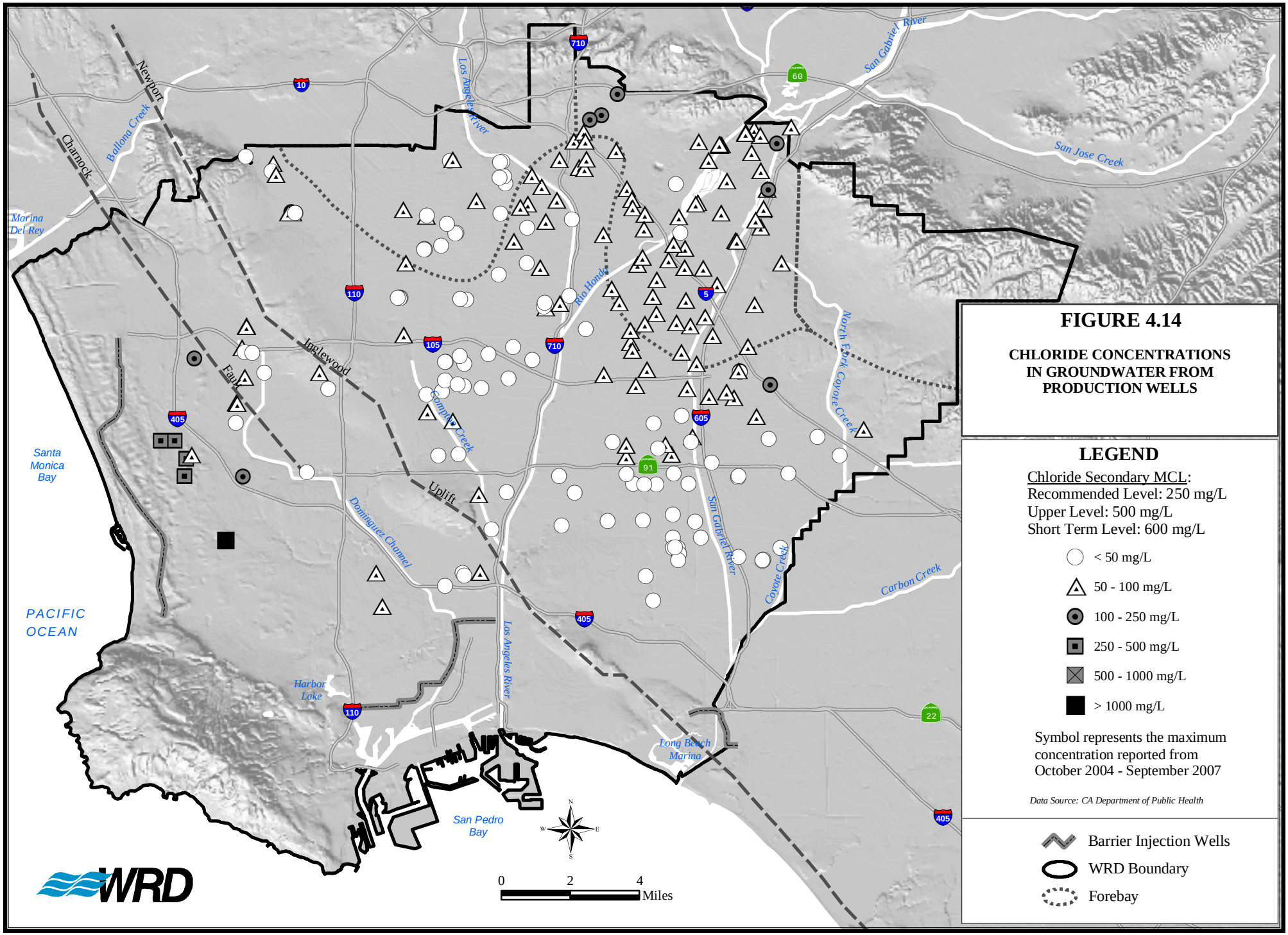


FIGURE 4.14
CHLORIDE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Chloride Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L
< 50 mg/L
50 - 100 mg/L
100 - 250 mg/L
250 - 500 mg/L
500 - 1000 mg/L
> 1000 mg/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Ballona Creek
Charnock
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Compton Creek
Uplift
Dominguez Channel
Coyote Creek
Carbon Creek
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

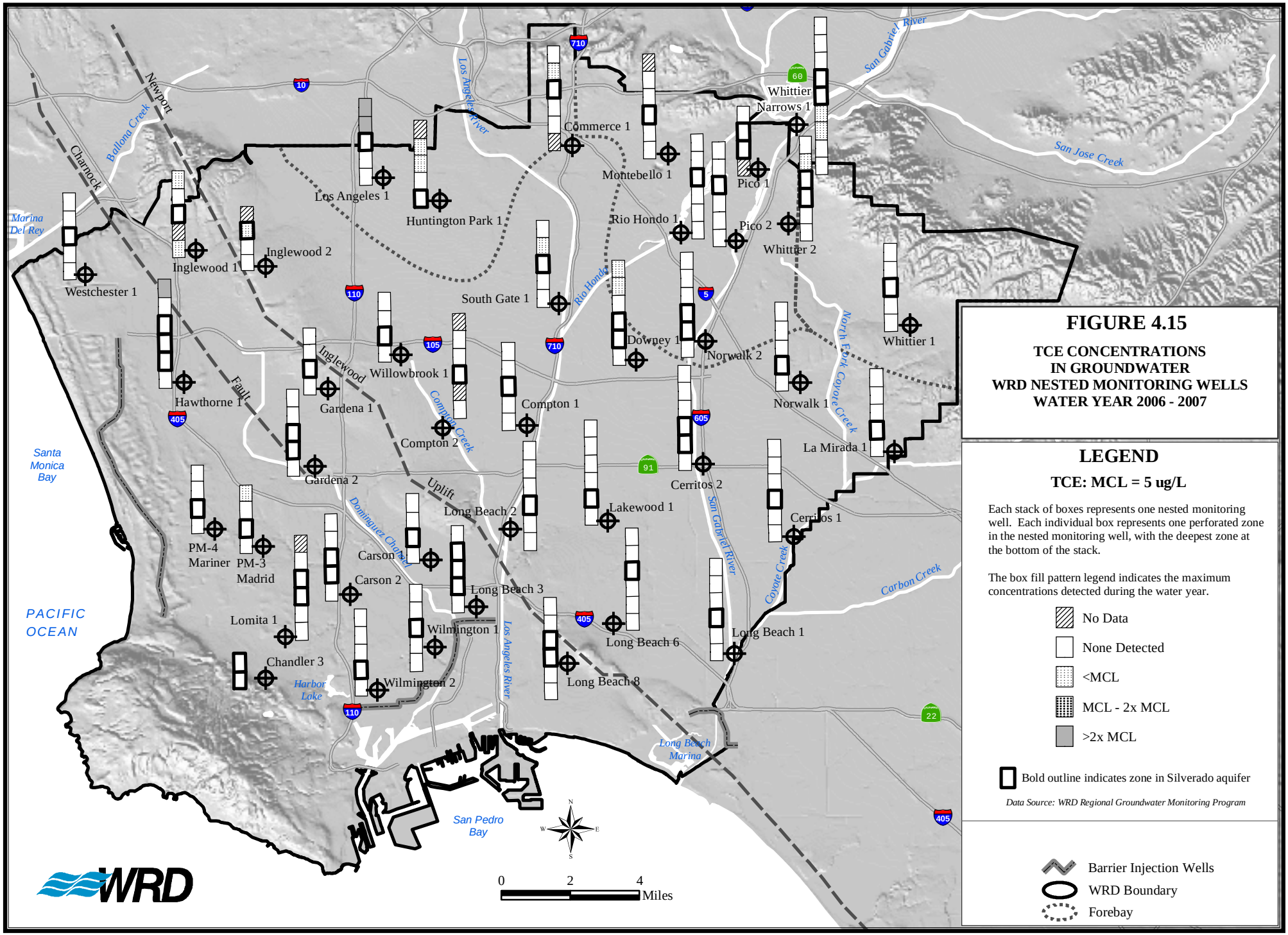


FIGURE 4.15
TCE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
TCE: MCL = 5 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
<MCL
MCL - 2x MCL
>2x MCL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Los Angeles 1
Huntington Park 1
Willowbrook 1
South Gate 1
Compton 1
Compton 2
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 1
Norwalk 2
Pico 1
Pico 2
Whittier Narrows 1
Whittier 1
Whittier 2
La Mirada 1
Cerritos 1
Cerritos 2
Lakewood 1
Long Beach 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Marina Del Rey
Ballona Creek
Charnock
Newport
Inglewood
Fault
Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Harbor Lake
Long Beach Marina
San Pedro Bay
Santa Monica Bay
PACIFIC OCEAN
0 2 4
Miles
WRD

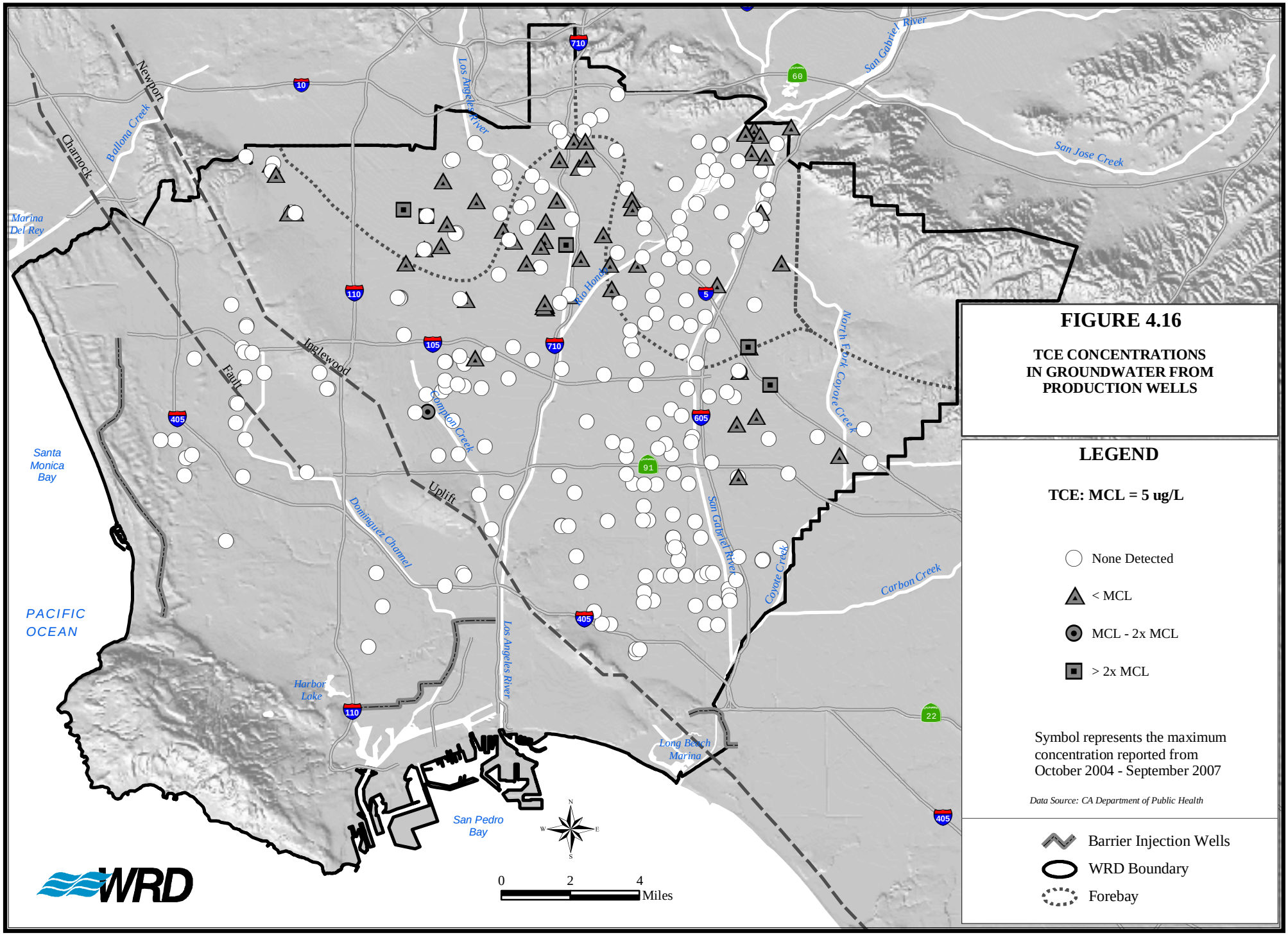


FIGURE 4.16
TCE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TCE: MCL = 5 ug/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Ballona Creek
Charnock
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Common Creek
Uplift
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Coyote Creek
Carbon Creek
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

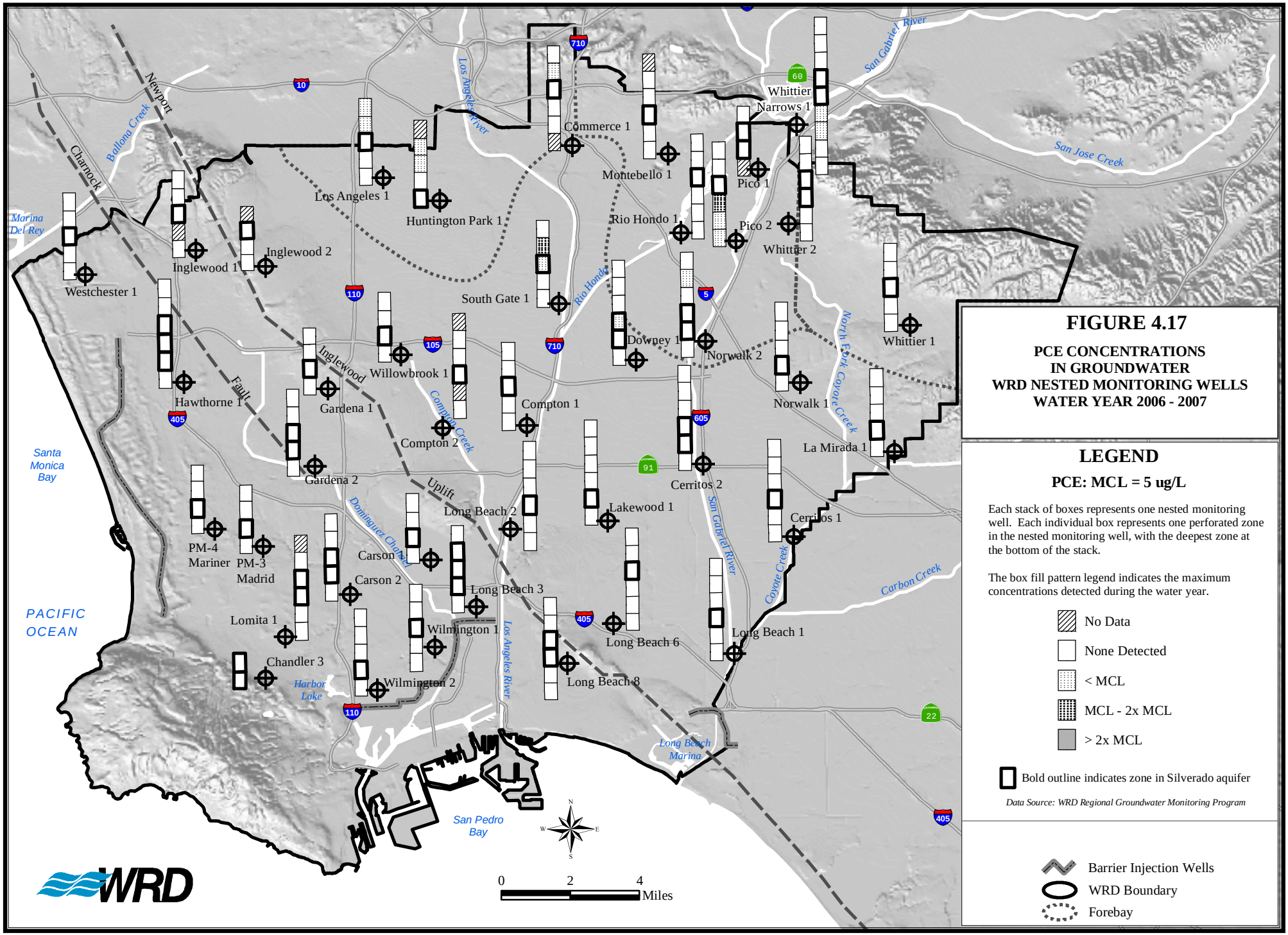


FIGURE 4.17
PCE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
PCE: MCL = 5 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Los Angeles 1
Huntington Park 1
Willowbrook 1
South Gate 1
Compton 1
Compton 2
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 2
Norwalk 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 2
Whittier 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
San Pedro Bay
Long Beach Marina
Ballona Creek
Charnock Fault
Inglewood Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Newport
Whittier
Narrows 1
0 2 4 Miles
WRD

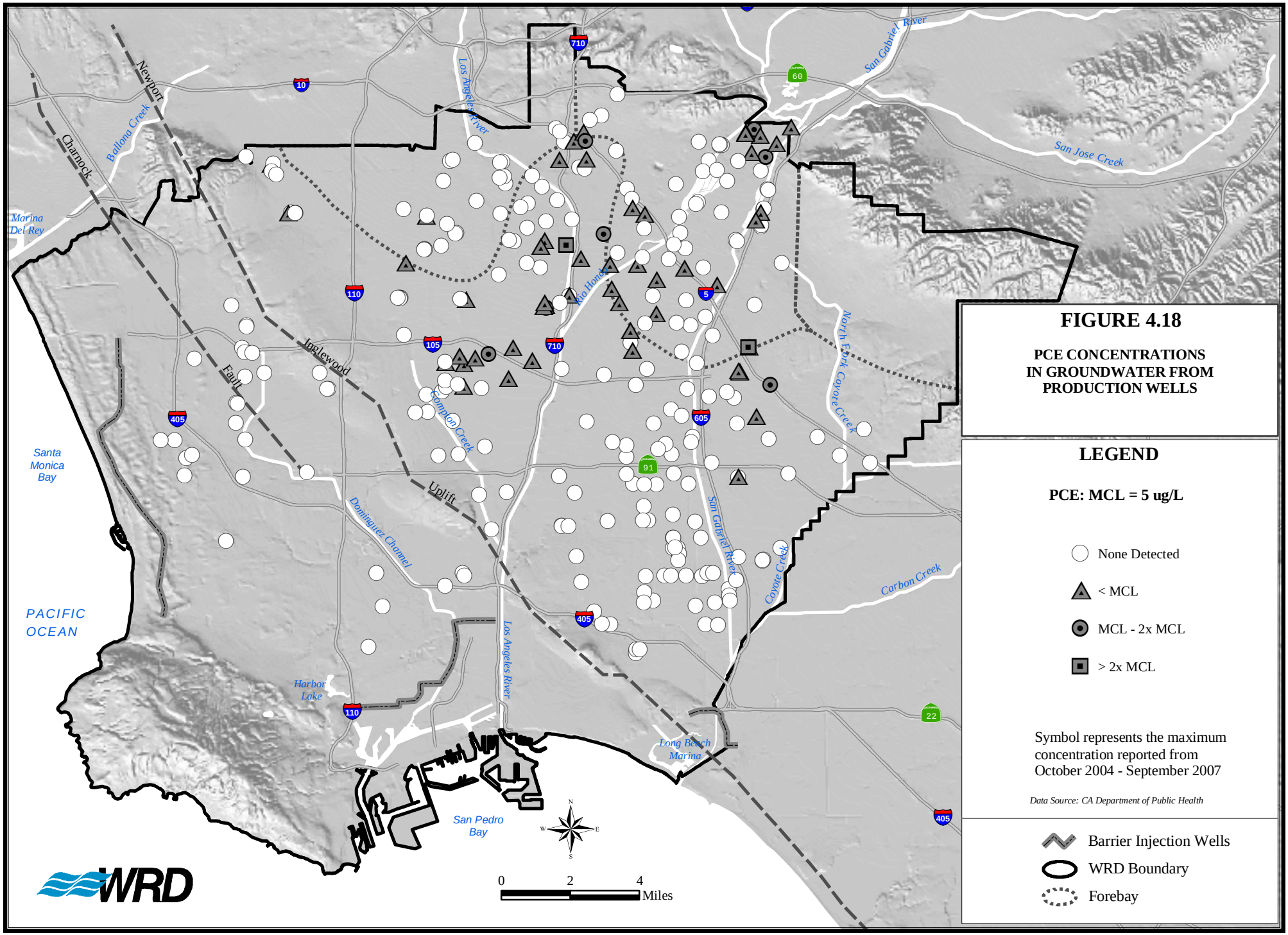


FIGURE 4.18
PCE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
PCE: MCL = 5 ug/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Common Creek
Uplift
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Coyote Creek
Carbon Creek
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

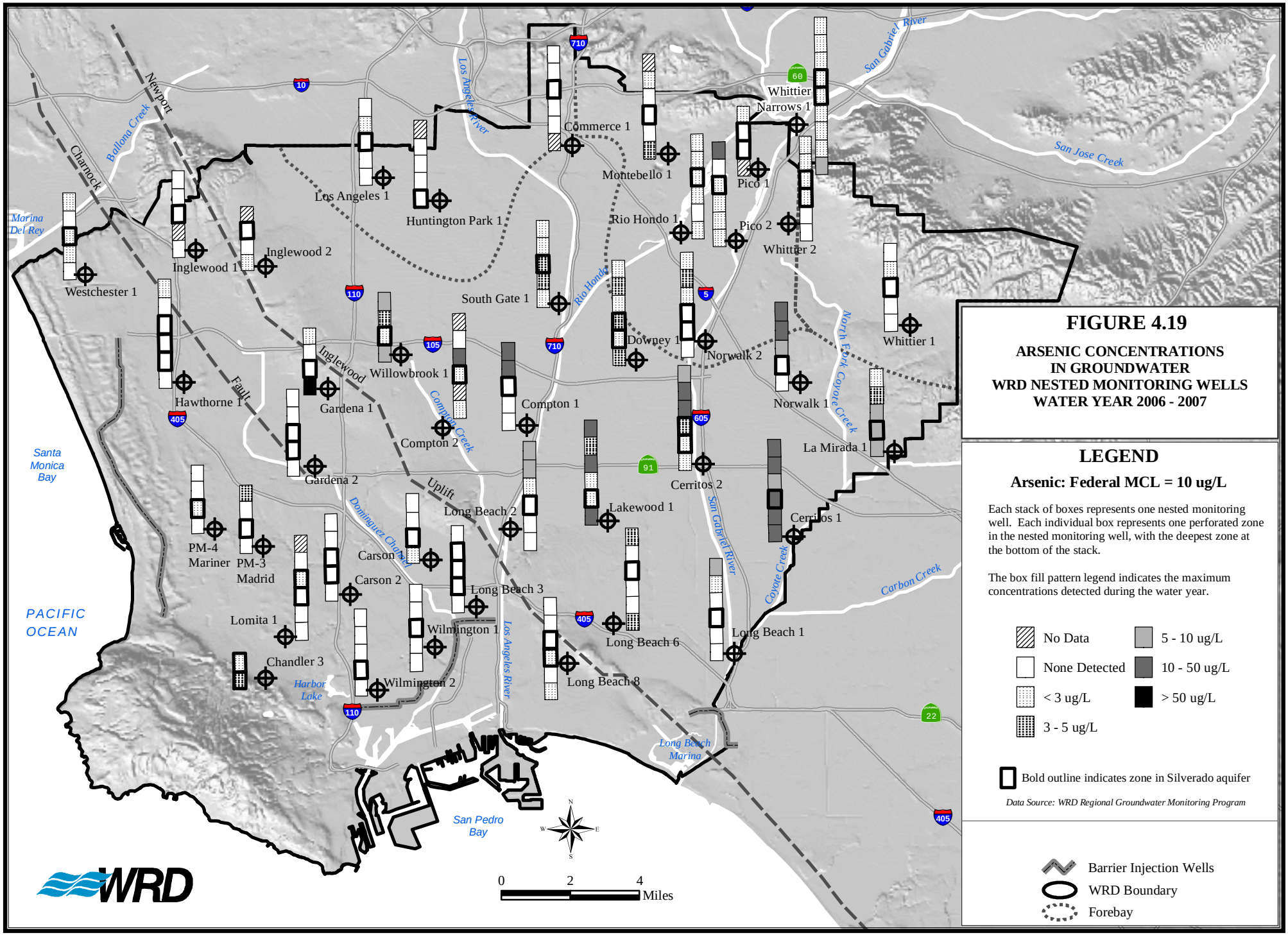


FIGURE 4.19
ARSENIC CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
Arsenic: Federal MCL = 10 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< 3 ug/L
3 - 5 ug/L
5 - 10 ug/L
10 - 50 ug/L
> 50 ug/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Los Angeles 1
Huntington Park 1
Willowbrook 1
Compton 2
Compton 1
South Gate 1
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 2
Norwalk 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 2
Whittier 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Inglewood Fault
Uplift
Newport
Charnock
Ballona Creek
Los Angeles River
Rio Hondo
Compton Creek
Dominguez Channel
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

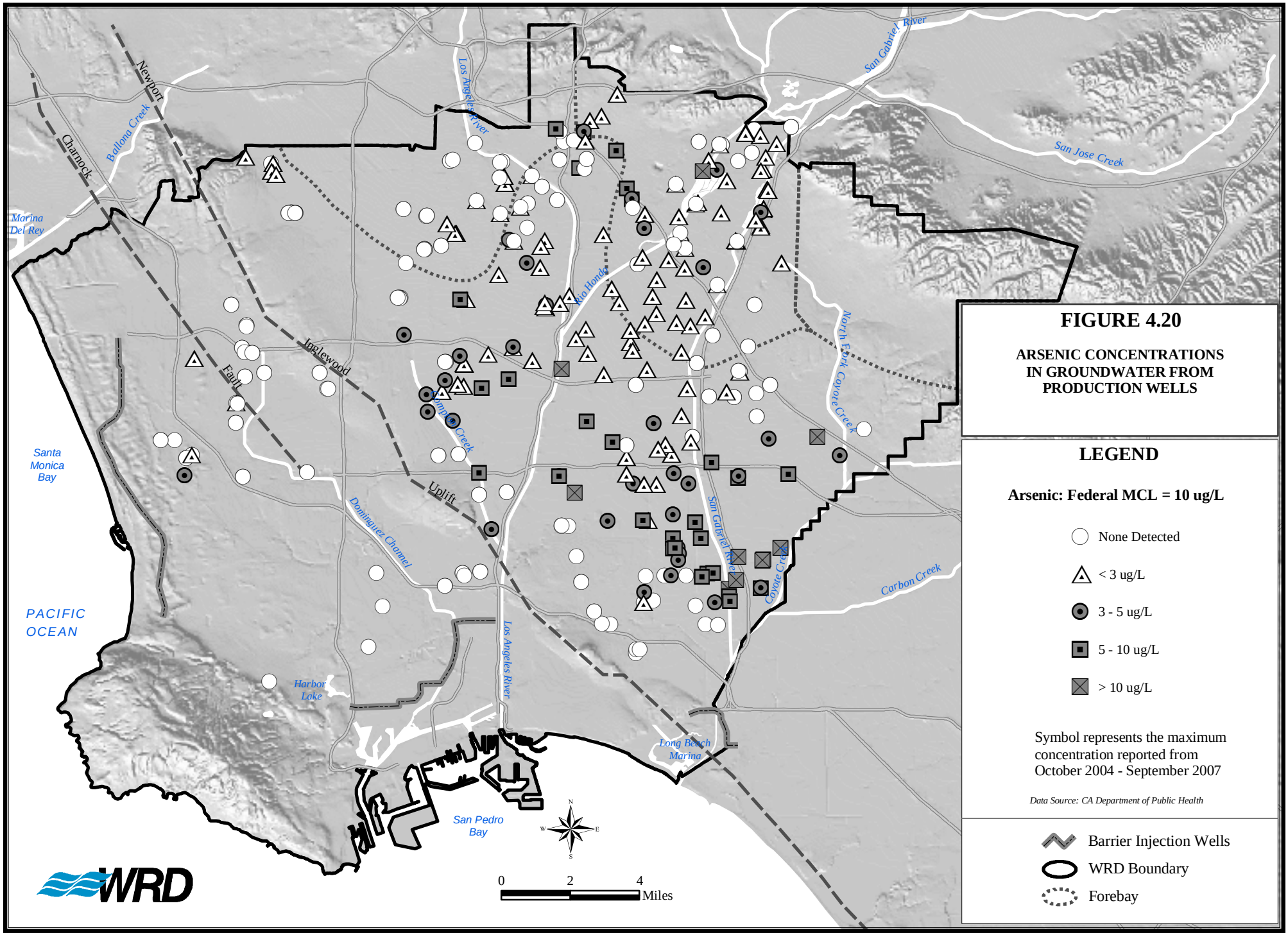


FIGURE 4.20
ARSENIC CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Arsenic: Federal MCL = 10 ug/L
None Detected
< 3 ug/L
3 - 5 ug/L
5 - 10 ug/L
> 10 ug/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Compton Creek
Santa Monica Bay
Uplift
Dominguez Channel
San Gabriel River
Coyote Creek
Carbon Creek
PACIFIC OCEAN
Los Angeles River
Harbor Lake
Long Beach Marina
San Pedro Bay
N
W
E
S
0
2
4
Miles
WRD

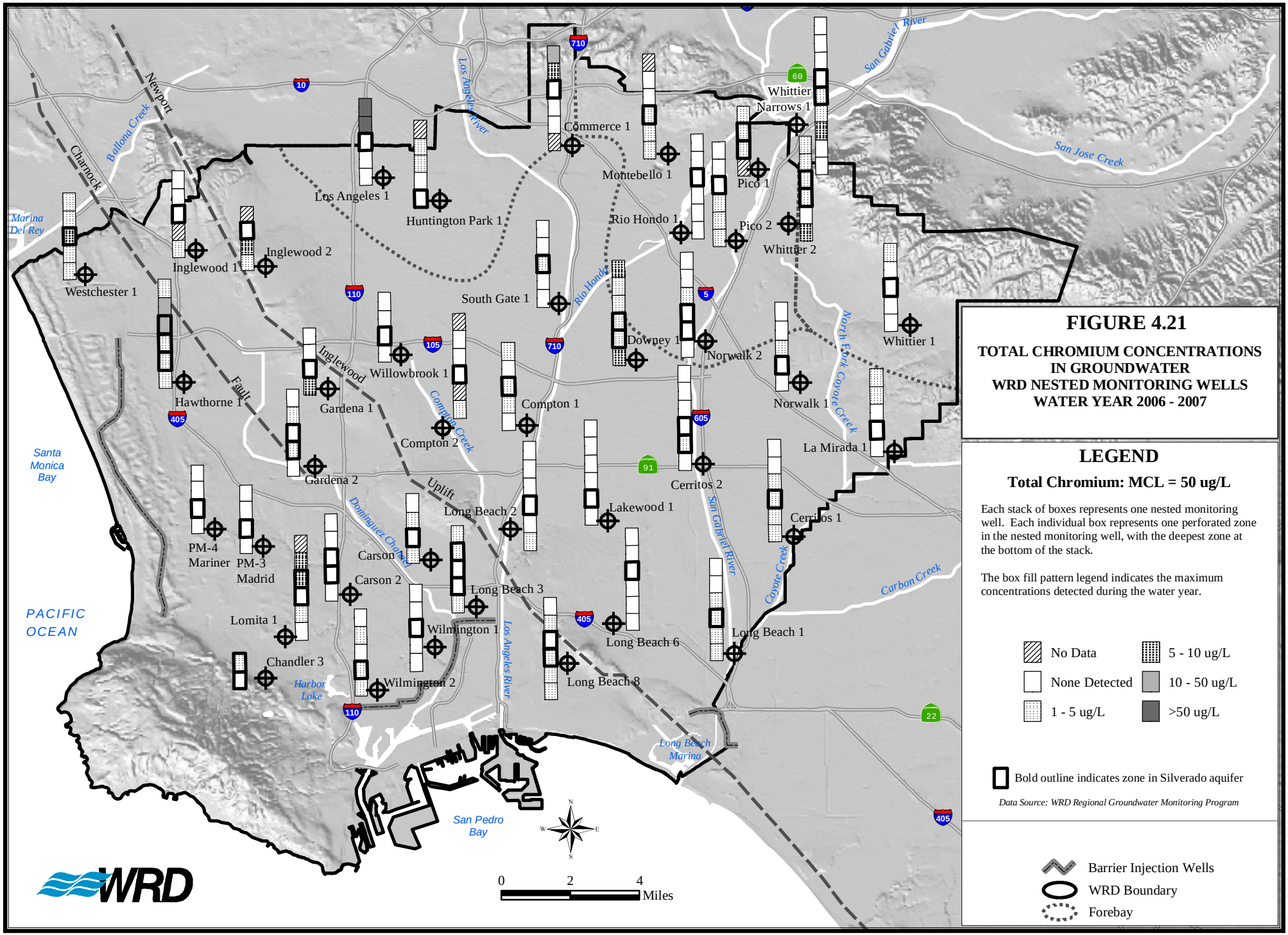


FIGURE 4.21
TOTAL CHROMIUM CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
Total Chromium: MCL = 50 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
1 - 5 ug/L
5 - 10 ug/L
10 - 50 ug/L
>50 ug/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Los Angeles 1
Huntington Park 1
Willowbrook 1
Compton 2
Compton 1
South Gate 1
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 2
Norwalk 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 2
Whittier 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
PM-4 Mariner
PM-3 Madrid
Lomita 1
Chandler 3
Harbor Lake
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Long Beach Marina
Ballona Creek
Charnock Fault
Inglewood Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Newport
0 2 4 Miles
WRD

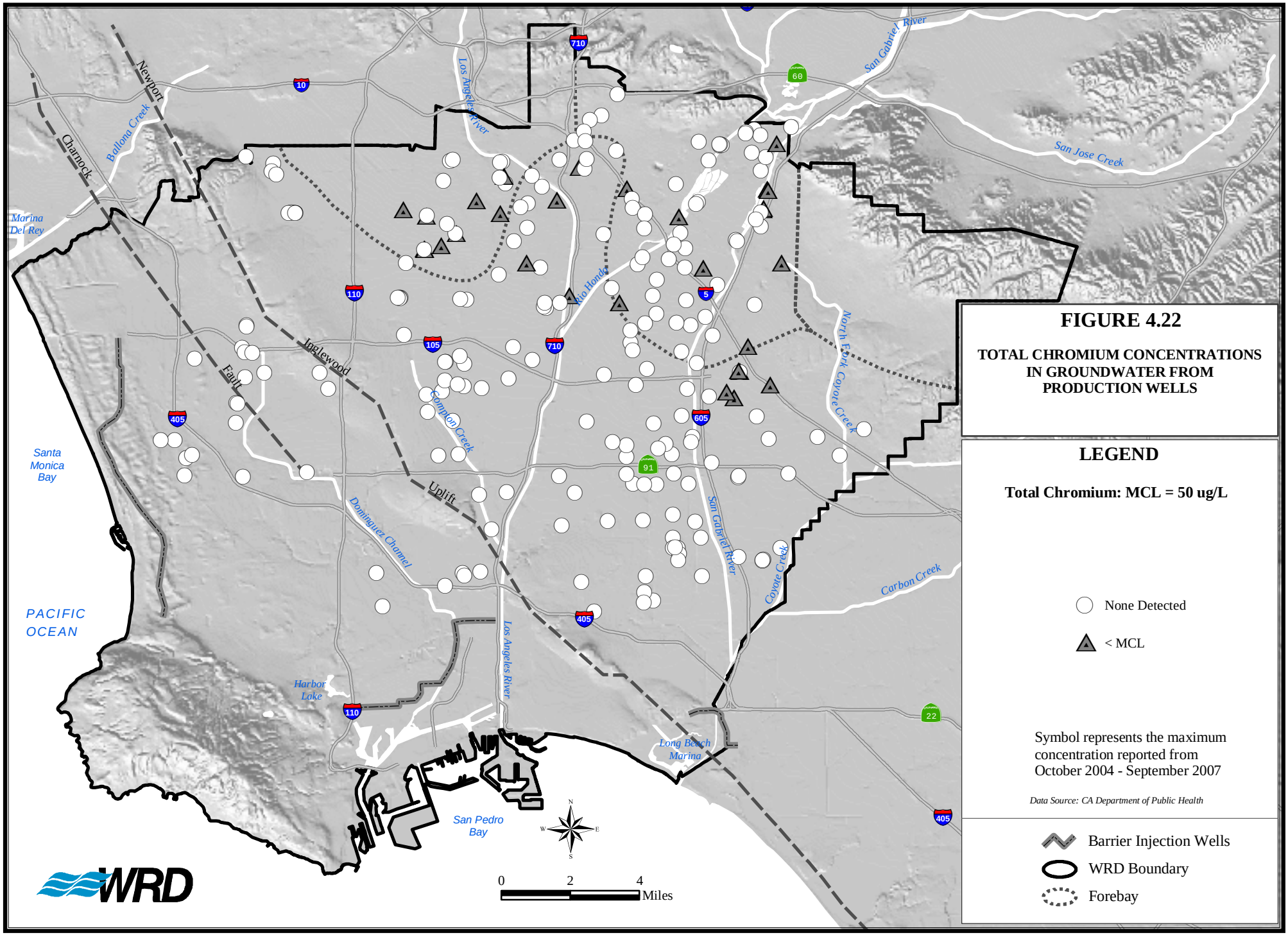
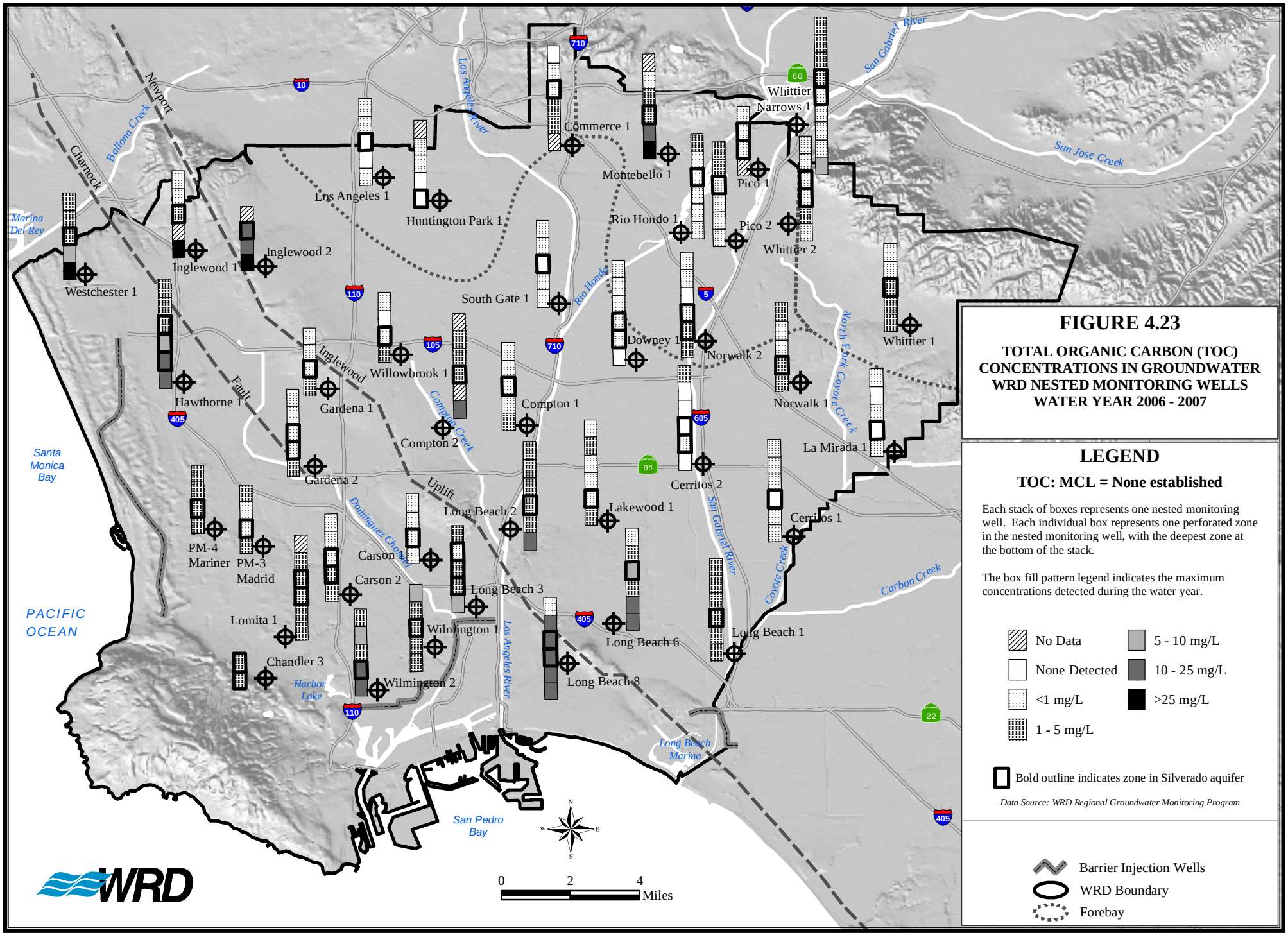


FIGURE 4.22
TOTAL CHROMIUM CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Total Chromium: MCL = 50 ug/L
None Detected
< MCL
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Fault
Inglewood
Uplift
Ballona Creek
Los Angeles River
San Gabriel River
Rio Hondo
Compton Creek
Dominguez Channel
Coyote Creek
North Fork Coyote Creek
San Jose Creek
Carbon Creek
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
San Pedro Bay
Long Beach Marina
0 2 4 Miles
WRD


Newport
Ballona Creek
Charnock
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Westchester 1
Inglewood 1
Inglewood 2
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Rio Hondo 1
Pico 1
Pico 2
Whittier
Narrows 1
Whittier 2
Whittier 1
South Gate 1
Rio Hondo
Downey 1
Norwalk 2
Norwalk 1
North Fork Coyote Creek
Inglewood
Fault
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Compton Creek
Compton 1
Compton 2
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Uplift
Long Beach 2
Dominguez Channel
PM-4
Mariner
PM-3
Madrid
Carson
Carson 2
Long Beach 3
Coyote Creek
Carbon Creek
Lomita 1
Wilmington 1
Long Beach 6
Long Beach 1
Chandler 3
Harbor Lake
Wilmington 2
Los Angeles River
Long Beach 8
Long Beach Marina
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
0 2 4
Miles
WRD
FIGURE 4.23
TOTAL ORGANIC CARBON (TOC) CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2006 - 2007
LEGEND
TOC: MCL = None established
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
<1 mg/L
1 - 5 mg/L
5 - 10 mg/L
10 - 25 mg/L
>25 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay

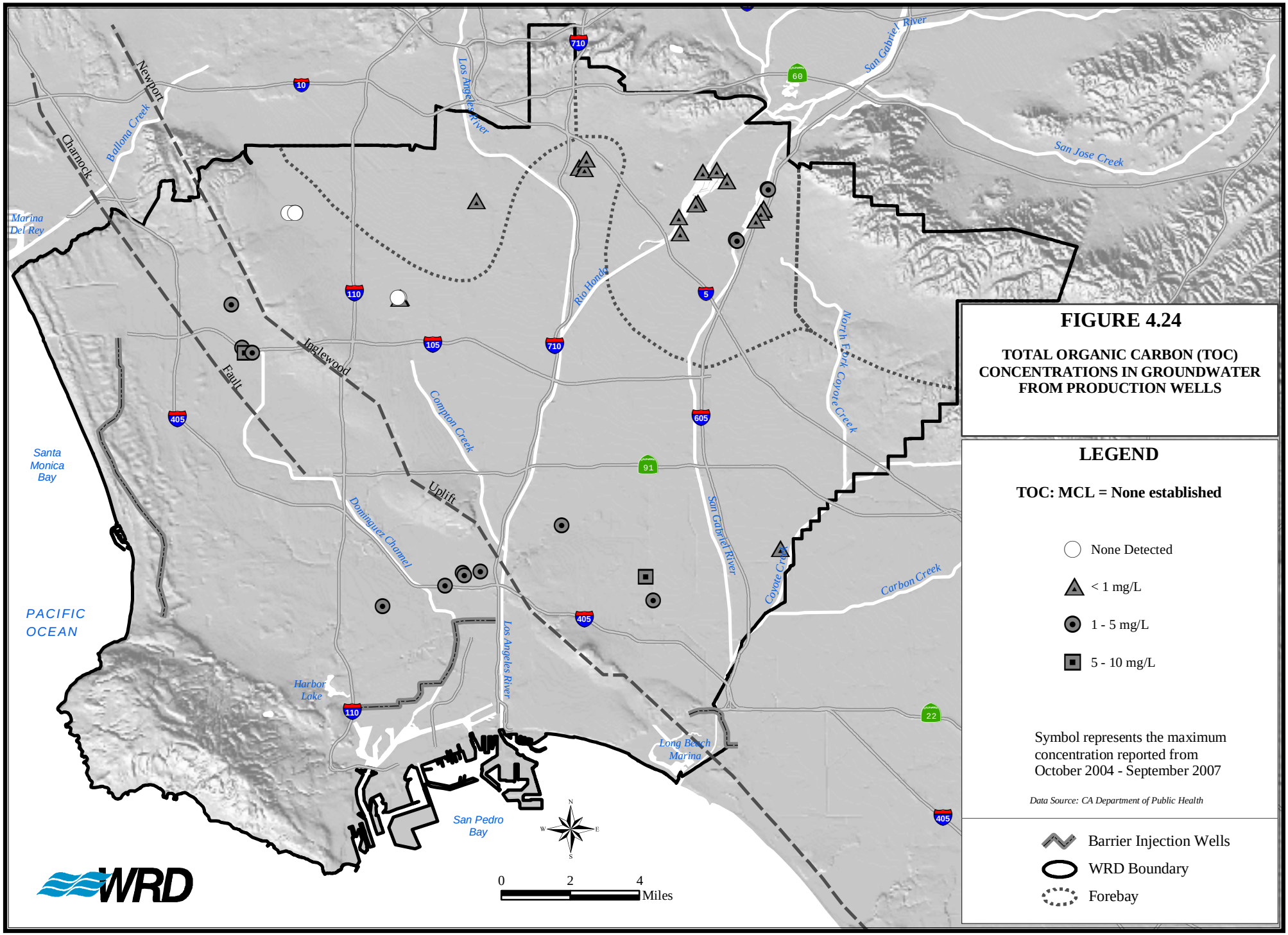


FIGURE 4.24

TOTAL ORGANIC CARBON (TOC) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS

LEGEND

TOC: MCL = None established

- None Detected
- < 1 mg/L
- 1 - 5 mg/L
- 5 - 10 mg/L

Symbol represents the maximum concentration reported from October 2004 - September 2007

Data Source: CA Department of Public Health

- Barrier Injection Wells
- WRD Boundary
- Forebay

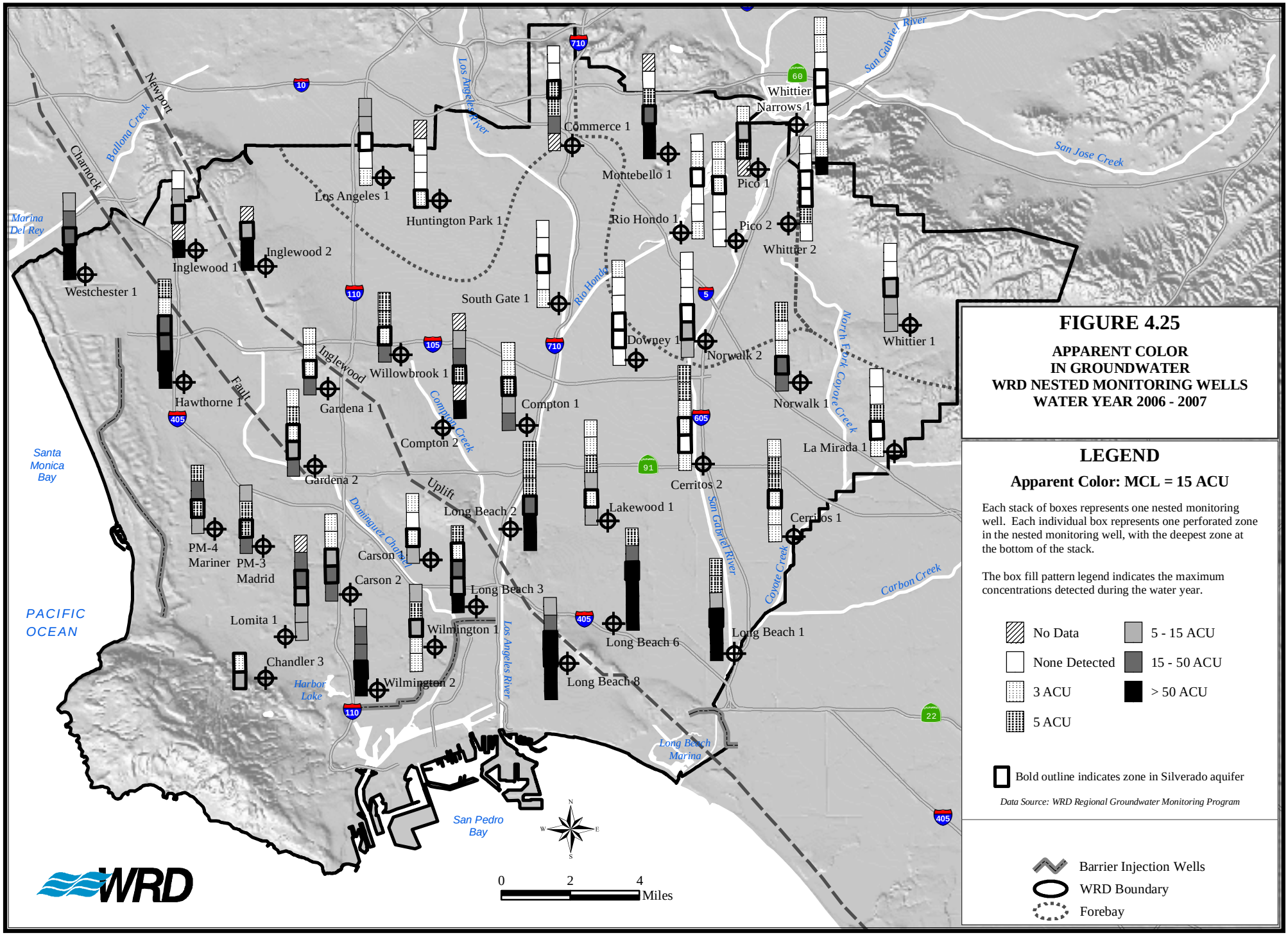


FIGURE 4.25
APPARENT COLOR
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
Apparent Color: MCL = 15 ACU
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
3 ACU
5 ACU
5 - 15 ACU
15 - 50 ACU
> 50 ACU
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Los Angeles 1
Huntington Park 1
Gardena 1
Gardena 2
Willowbrook 1
South Gate 1
Compton 1
Compton 2
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 1
Norwalk 2
Pico 1
Pico 2
Whittier 1
Whittier 2
Whittier Narrows 1
La Mirada 1
Cerritos 1
Cerritos 2
Lakewood 1
Long Beach 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Harbor Lake
Long Beach Marina
Ballona Creek
Charnock Fault
Inglewood Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Newport
0 2 4 Miles
WRD

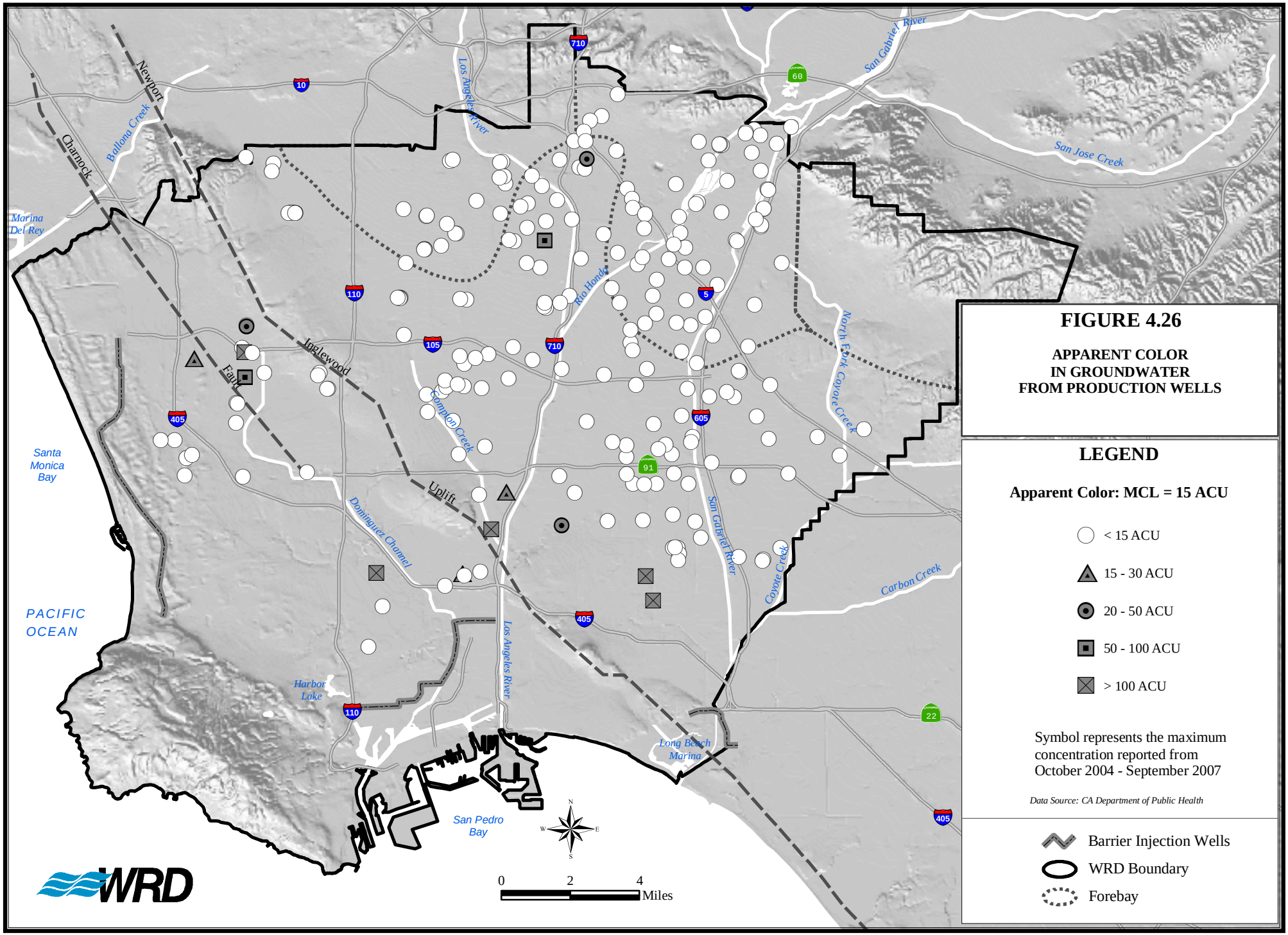


FIGURE 4.26
APPARENT COLOR
IN GROUNDWATER
FROM PRODUCTION WELLS
LEGEND
Apparent Color: MCL = 15 ACU
< 15 ACU
15 - 30 ACU
20 - 50 ACU
50 - 100 ACU
> 100 ACU
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Common Creek
Uplift
Dominguez Channel
Coyote Creek
Carbon Creek
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

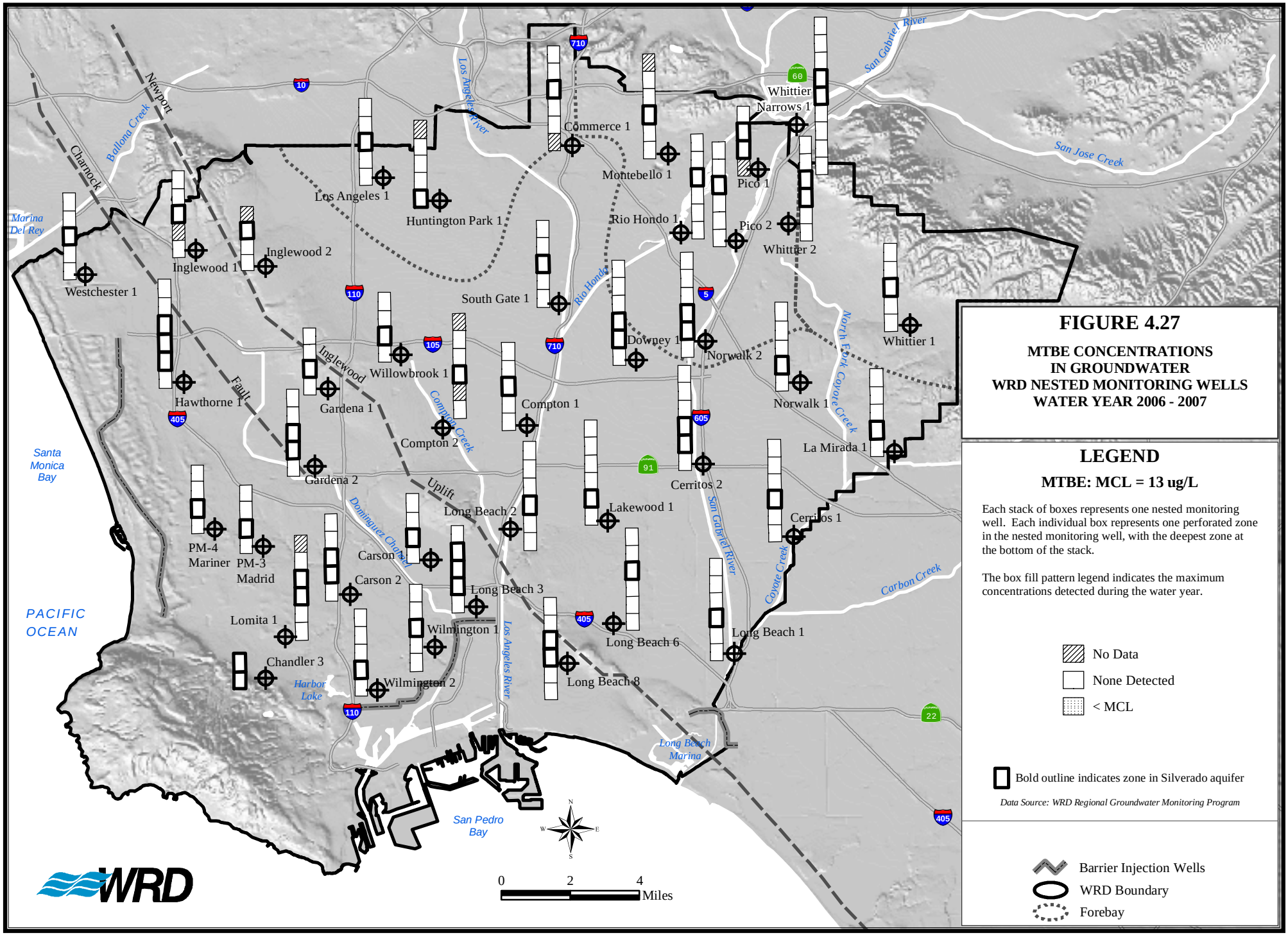


FIGURE 4.27

MTBE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007

LEGEND

MTBE: MCL = 13 ug/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- None Detected
- < MCL

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay

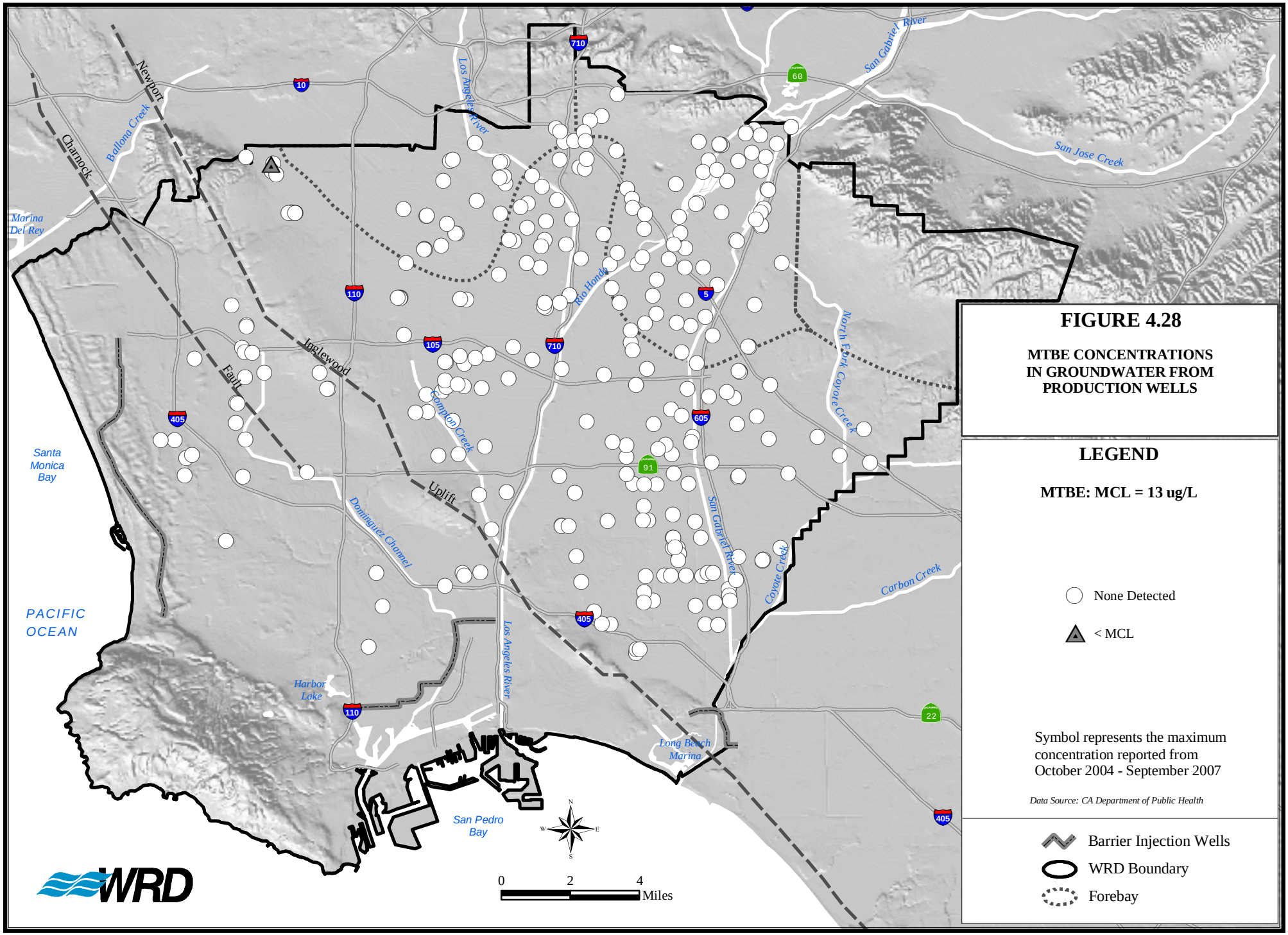


FIGURE 4.28
MTBE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
MTBE: MCL = 13 ug/L
None Detected
< MCL
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Common Creek
Uplift
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
Coyote Creek
Carbon Creek
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD
10
710
60
110
105
5
405
605
91
22

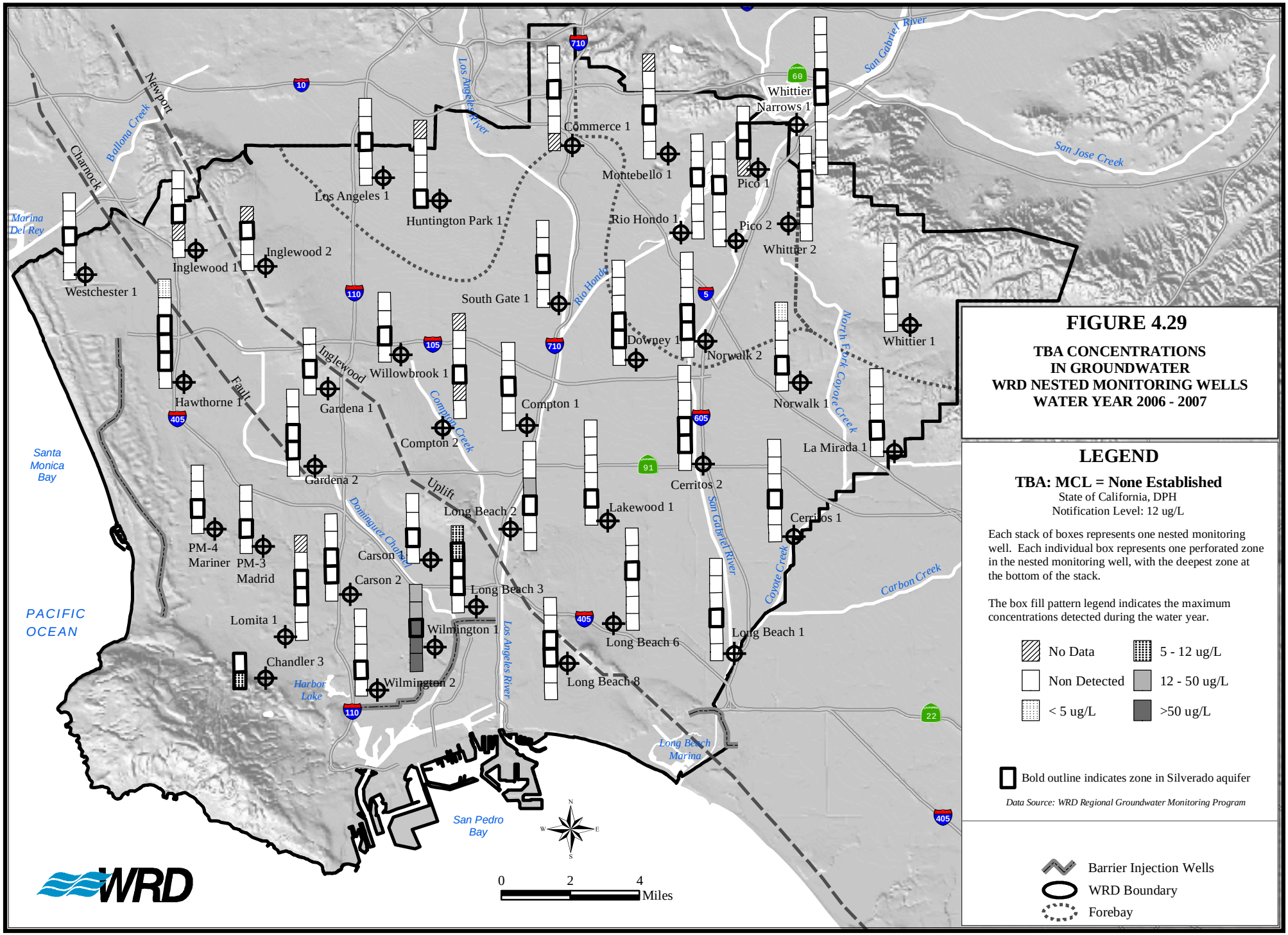


FIGURE 4.29

TBA CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007

LEGEND

TBA: MCL = None Established
State of California, DPH
Notification Level: 12 ug/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- Non Detected
- < 5 ug/L
- 5 - 12 ug/L
- 12 - 50 ug/L
- >50 ug/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- Barrier Injection Wells
- WRD Boundary
- Forebay

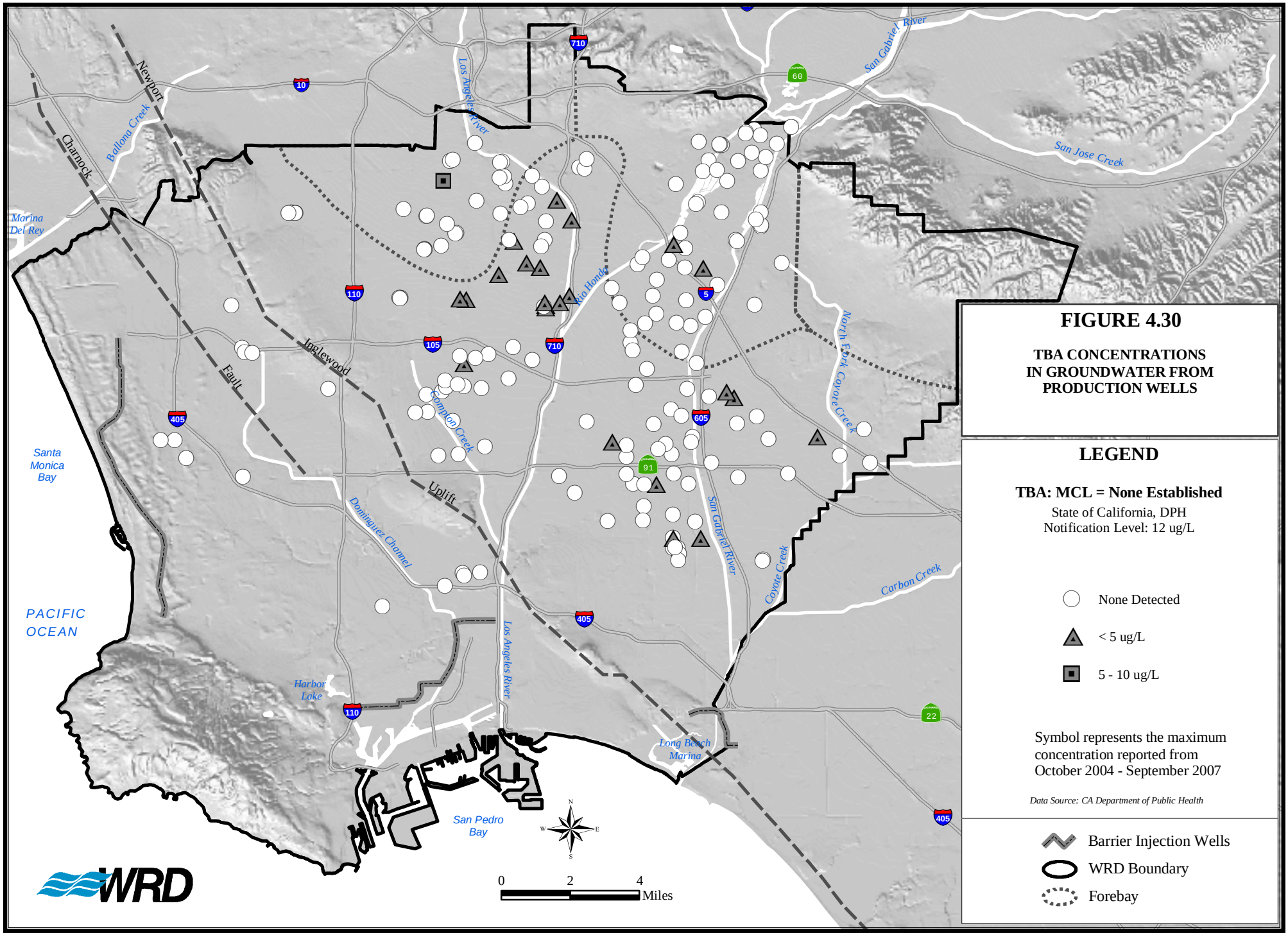


FIGURE 4.30
TBA CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TBA: MCL = None Established
State of California, DPH
Notification Level: 12 ug/L
None Detected
< 5 ug/L
5 - 10 ug/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Common Creek
Uplift
Dominguez Channel
Coyote Creek
Carbon Creek
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD

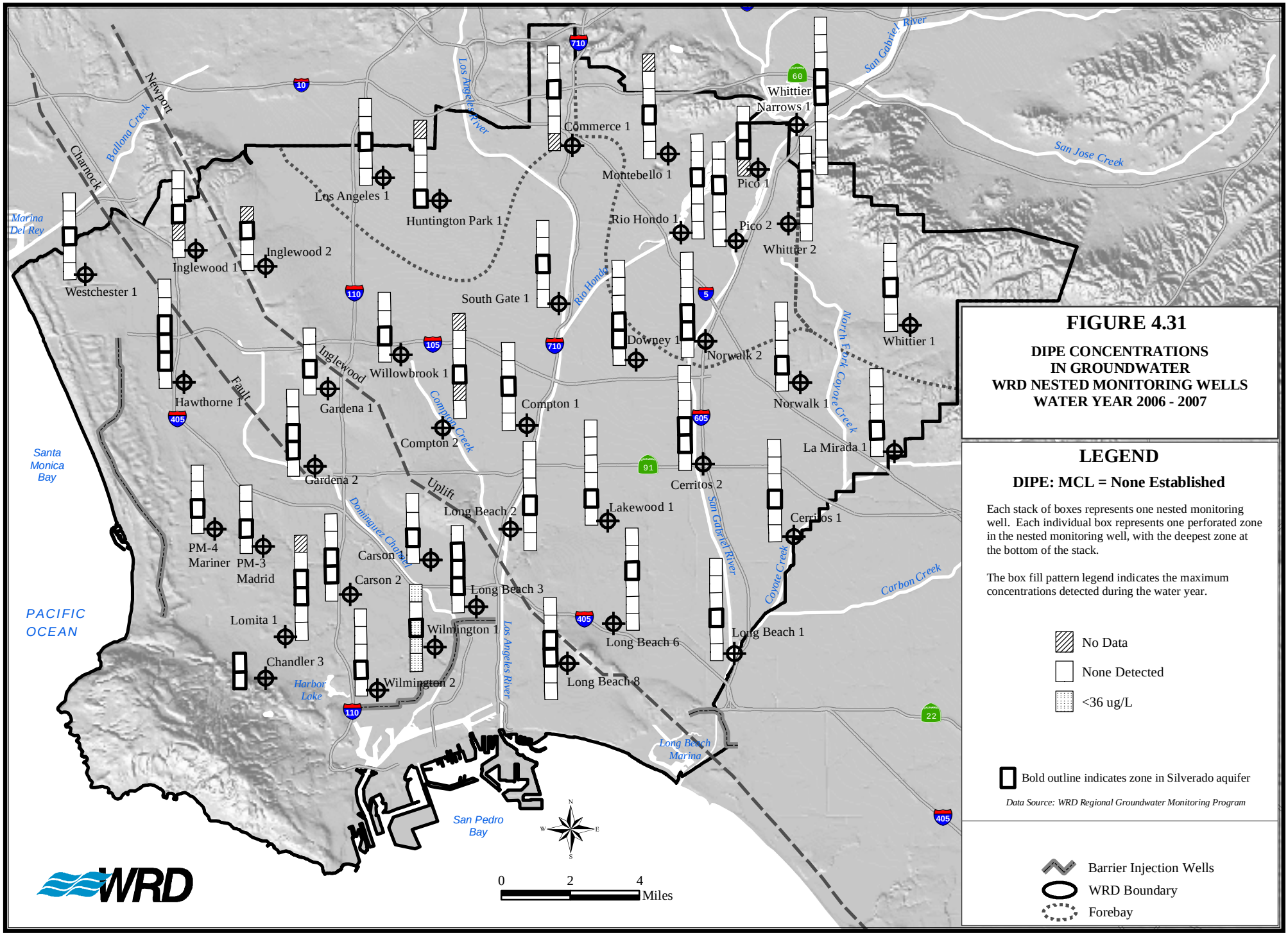


FIGURE 4.31
DIPE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2006 - 2007
LEGEND
DIPE: MCL = None Established
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
<36 ug/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Los Angeles 1
Huntington Park 1
Willowbrook 1
South Gate 1
Compton 1
Compton 2
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Norwalk 1
Norwalk 2
Pico 1
Pico 2
Whittier Narrows 1
Whittier 1
Whittier 2
La Mirada 1
Cerritos 1
Cerritos 2
Lakewood 1
Long Beach 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
PM-4 Mariner
PM-3 Madrid
Carson 1
Carson 2
Lomita 1
Chandler 3
Wilmington 1
Wilmington 2
Marina Del Rey
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
San Pedro Bay
Long Beach Marina
Ballona Creek
Charnock Fault
Inglewood Uplift
Dominguez Channel
Compton Creek
Rio Hondo
Los Angeles River
San Gabriel River
North Fork Coyote Creek
Coyote Creek
San Jose Creek
Carbon Creek
Newport
0 2 4 Miles
WRD

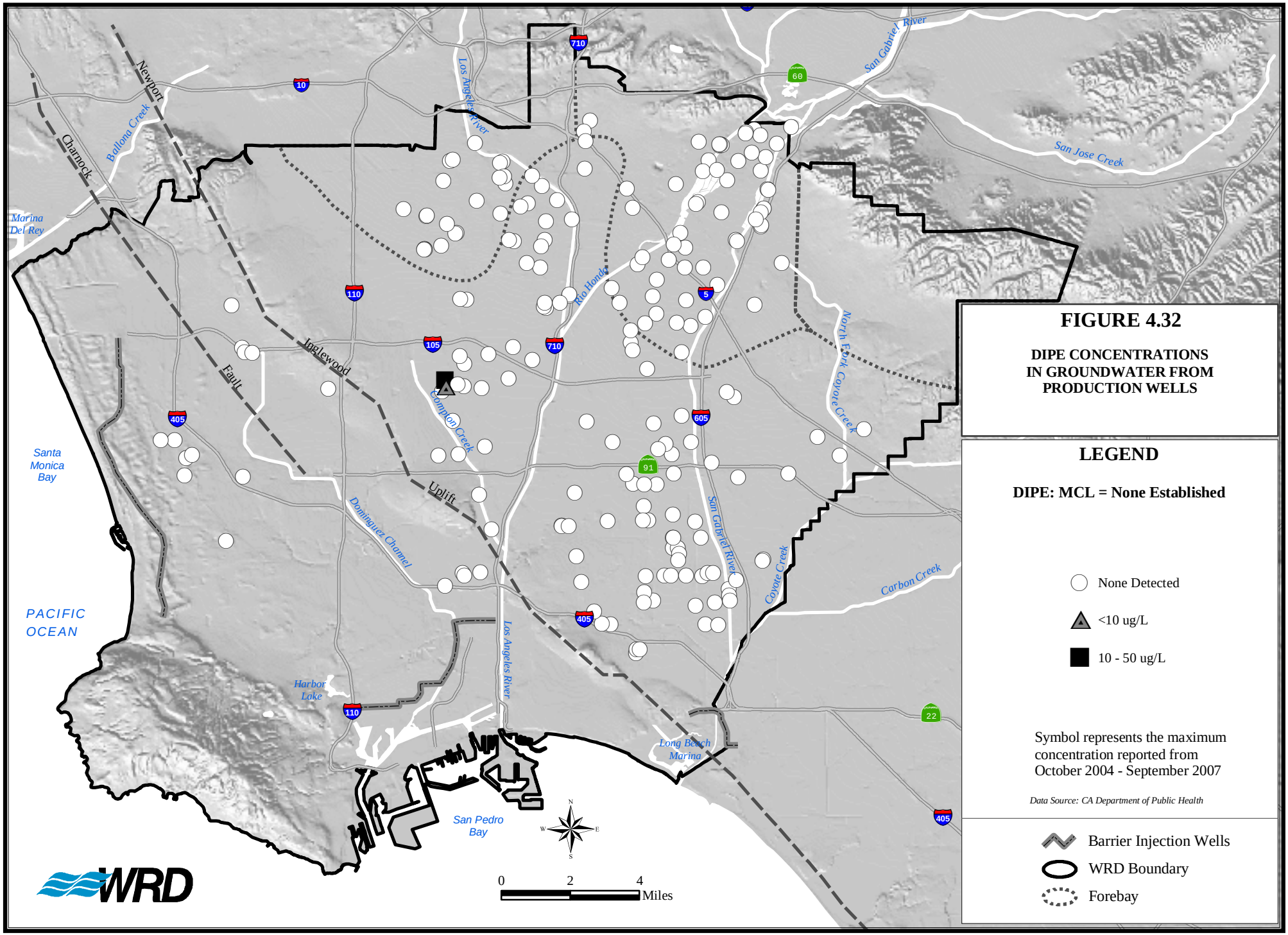


FIGURE 4.32
DIPE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
DIPE: MCL = None Established
None Detected
<10 ug/L
10 - 50 ug/L
Symbol represents the maximum concentration reported from October 2004 - September 2007
Data Source: CA Department of Public Health
Barrier Injection Wells
WRD Boundary
Forebay
Newport
Charnock
Ballona Creek
Los Angeles River
San Gabriel River
San Jose Creek
Marina Del Rey
Rio Hondo
North Fork Coyote Creek
Inglewood
Fault
Common Creek
Uplift
Dominguez Channel
Coyote Creek
Carbon Creek
Santa Monica Bay
PACIFIC OCEAN
Harbor Lake
Long Beach Marina
San Pedro Bay
0 2 4 Miles
WRD